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About the Report

This is China National Petroleum Corporation’s 13th annual Corporate Social Responsibility Report since the establishment of the reporting system in 2006. This report reflects our accomplishments in fulfilling our economic, environmental and social responsibilities. Hereby, we make the following statement on relevant information:

Reporting company: China National Petroleum Corporation (CNPC)

Alternative reference: China National Petroleum Corporation is also referred to in this report as “CNPC”, “the Company”, “we” and “us”.

Timeframe: From January 1 to December 31, 2018. Given the continuity and comparability of the disclosed information, part of the information may be taken forward or backward as necessary.

Reporting period: This is an annual report. The 2017 Corporate Social Responsibility Report was issued on May 17, 2018.

Reporting principles: Objective, standardized, honest, transparent and substantive.

Report content: Our accomplishment in fulfilling our economic, environmental and social responsibilities.

Information sources: The Company’s official documents, statistical reports and statistics related to the Company’s subsidiaries. All the information has been reviewed by the Company’s management and its subsidiaries.

Report improvements: In order to showcase our social responsibility performance in a more objective, comprehensive and prioritized manner, the 2018 report features some important new issues, such as “energy transition” and “green development”. While compiling this report, we carried out on-site investigations on the CSR performance of our affiliated companies, verified the authenticity of enterprises case studies, extensively solicited opinions and suggestions and actively responded to the concerns of all stakeholders.

References:

- The Guideline on Better Fulfilling Social Responsibility by Central Enterprises issued by the State-owned Assets Supervision and Administration Commission (SASAC).

Language: The report is published in Chinese and English. In case of any discrepancy, the Chinese version shall prevail.

Access to the report: You may send email to csr@cnpc.com.cn or call 8610-59984395 for a hard copy. It is recommended that you download the PDF version of this report at www.cnpc.com.cn or scan the QR code for the mobile version.

I feel very pleased to present CNPC Corporate Social Responsibility Report 2018. The year 2018 witnessed a slow recovery of the world economy, growing geopolitical uncertainties, and sharply fluctuating international oil prices, as well as sluggish growth of domestic oil and gas demand. In response to this grim situation and following the principle of steady development, we further optimized the oil and gas industry chain, accelerated replacement of old growth drivers with new ones, rationalized systems and mechanisms, enhanced quality and efficiency, and pressed ahead with our efforts to build a world-class integrated international energy company. As a result, we strengthened our concept of steady development and achieved initial success in our high-quality development.

Always bearing in mind that our high-quality development is inseparable from that of society, we strove to explore opportunities, seek development, and create shared value with all our stakeholders while meeting the demand of society and addressing common challenges based on the development concept of innovation, coordination, green, openness and sharing. Implementing the strategy of innovation-driven development and promoting high-quality development

Innovation contributes to development towards a better future. In 2018, guided by the principle of "business-oriented development, independent innovation, more incentives, and openness and sharing", we strove for innovation in technology, management and business model, promoted the deep integration of industrialization and informatization, and further strengthened the role of science and technology in supporting our development. Specifically, the research and development of large-scale, high-productivity, high-efficiency oil and gas production technologies, the development of exploration technologies for the deep sea, the development of new generation of logging software and technologies such as the 200,000-channel ultra-efficient marine land seismic exploration technology reached internationally advanced level, and significant progress was made in the application of information technology in areas such as digital oilfield, intelligent refineries, intelligent pipelines, and Intelligent Service Station 3.0 featuring "Service Stations Internet+". The "Theory and technology for conglomerate exploration in sag area and the discovery of giant Mahu Oilfield" was awarded the first-class National Science and Technology Progress Award.

Implementing the strategy of innovation-driven development and promoting high-quality development

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Committed to opening up & cooperation and building a community of shared interests

The world is going through a new round of unprecedented development, transformation and adjustment, and the economic and social well-being of countries around the world is increasingly interconnected. Enterprises make progress together through exchange and interconnectivity, and fall behind because of isolation and closedness. Only openness and cooperation can bring more opportunities and create more space for development. Therefore, in the spirit of openness and upholding the concept of mutually beneficial and win-win development, we actively promoted international oil and gas cooperation, and have put in place five overseas oil and gas cooperation zones, four strategic oil and gas channels and three international oil and gas operation centers, further enhancing our international competitiveness and influence. Based on the principle of "achieving shared growth through discussion and collaboration", we strengthened strategic cooperation with governments of countries along the Belt and Road, domestic and foreign counterparts and partners, so as to jointly respond to major changes in the economy and industry work hard to build a community of shared interests for open, win-win and mutually beneficial oil and gas cooperation.

In 2018, CNPC scored major achievements in overseas oil and gas cooperation. The Limm Shaf and Naif project and the Lower Zakum project in Abu Dhabi, UAE and the Peroba deepwater exploration project in Brazil saw substantial progress based on the signing of agreements; the Phase I of Al Yaqit project in UAE and Brazil’s Libra Project achieved first oil; Phase II of Al Haya Project in Iraq and Phase I of Arma Darya Eastern gas fields in Turkmenistan were put into operation; Yamal LNG completed and launched second and third trains and shipped its first cargo to China; and our overseas oil and gas production hit another record high.

Creating shared value and promoting harmonious development

We worked to make sure everyone takes part, contributes and shares the benefits, so as to share our development achievements with our employees, the public and our partners. We attach great importance to social responsibility management throughout the industry chain, and advocate and encourage our suppliers and contractors to fulfill their social responsibility by leveraging our advantages in funding, technology and management to achieve common development. Adhering to the principle of putting people first, we provide our employees with career development platforms and promotion channels, in order to achieve common development of both the Company and employees. We actively support social welfare undertakings, and continued to launch social welfare campaigns such as "Help Migrant Workers Return Home", "Teacher Training Program," "Xiaogan Educational Program" and "Hand in Hand with CNPC for Public Welfare," so as to achieve mutually beneficial development with the countries and regions where we operate and promote local economic and social development. We carried out targeted poverty alleviation, and lifted eight out of 10 counties with fixed-point poverty alleviation out of poverty. Highly recognized by the local government and the people for our endeavors in targeted poverty alleviation, we were named a "Responsible Enterprise in 2018" and awarded the "Social Responsibility Special Contribution Award" in Kazakhstan and Uzbekistan, where we were granted the "Friendship Medal" for our outstanding social contributions. In 2019, the world economy will face mounting risks for economic downturn, and the international oil prices will fluctuate over a wide range. Domestically, consumption growth of refined products will continue to slow down, intensifying competition in the oil and gas market. All these factors will pose new challenges for our high-quality development. To address such challenges, we will strive for steady development and high-quality development, and devote more efforts to developing new businesses, enhancing open cooperation, pushing for reform and innovation, and consolidating the foundation for development. We will make unremitting efforts to blaze new trails in the building of a world-class integrated international energy company, and make new contributions to the sound and sustained economic development and social harmony and stability.

Looking to the future, CNPC will faithfully fulfill our responsibilities and obligations, and give back to society, our stakeholders and employees with excellent performance. We are grateful for your attention and support over the years, and will continue to promote communication through platforms such as this report, further enhance our interaction with all stakeholders, and jointly create a better future for all of us.
About Us

As one of China’s largest oil and gas producers and suppliers, CNPC is an integrated international energy corporation, with our business covering oil and gas exploration and development, refining and chemicals, marketing and trading, pipeline transmission and stocking, technical services, engineering construction, equipment manufacturing, and financial services. We are the leading company in oil and gas exploration and development in China, and possess oil and gas assets and interests in 34 countries. In 2018, CNPC ranked 3rd among world’s top 50 oil companies and 4th in the Fortune Global 500.

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CNPC registered total assets of RMB 4.13246 trillion. We recorded sales revenues of RMB 2.73901 trillion and total profits of RMB 110.56 billion; up 17% and 107.3% respectively year-on-year.

Our tax and fees payments totaled RMB 421.16 billion.

CNPC operated oil and gas pipelines with a total mileage of 86,734 kilometers; covering 30 provinces (municipalities and autonomous regions) and the Hong Kong SAR.

Domestic and overseas oil and gas production amounted to 286.346 million tons of oil and gas equivalent, an increase of 4.54% year-on-year.

Domestically, we produced a total of 101,017 million tons of crude and 109.37 billion cubic meters of natural gas; accounting for 53.4% and 70.2% of China’s total respectively.

Our domestic marketing volume of refined products was 117.358 million tons, accounting for 36.1% of the domestic market share.

We increased supply of clean energy, and our domestic marketing volume of natural gas was 172.42 billion cubic meters; up 13.6% year-on-year.

In China, our newly added proven oil in place totaled 633 million tons, exceeding 600 million tons for the 13th consecutive year; and newly added proven gas in place reached 584.6 billion cubic meters, exceeding 400 billion cubic meters for the 12th consecutive year.

Our overseas oil and gas operations in 34 countries yielded an equity production of 98.18 million tons of oil and gas equivalent; we provided technical services and engineering construction in 77 countries and regions around the world.

Two of our R&D achievements won China’s national science and technology awards; in particular, the “theory and technology for conglomerate exploration in sag area and the discovery of giant Mahu Oilfield” was awarded the first-class National Science and Technology Progress Award.

The “key technology for oil and gas pipeline system integrity and its industrial application” was awarded the second-class National Technical Invention Award.

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The proportion of natural gas consumption in our total energy consumption increased by 1.09% year-on-year; while the proportion of raw coal consumption in our total energy consumption decreased by 1.01% year-on-year.

We saved energy equal to 860,000 tons of standard coal, 12.13 million cubic meters of water, and 1,253 hectares of land; the emissions of major pollutants decreased year-on-year.

We have a total of 1.448 million employees, and more than 84.4% of our overseas employees are local hires.

We spent RMB 2.24 billion on employee training and a total of 800,000 employees were trained; among which 100% frontline staff was covered.

We invested RMB 700 million in public welfare undertakings globally; benefiting hundreds of millions of people. In China, we spent RMB 97.49 million launching 44 projects to support 13 counties (districts) in seven provinces (municipalities and autonomous regions).
Corporate Governance

CNPC is a solely state-owned enterprise. According to laws and regulations such as the Company Law of the PRC, the Law of the PRC on the State-owned Assets Enterprises, the Constitution of the Communist Party of China, and the Regulation of Leading Party Member Groups of COP (Trial Implementation), in addition to arrangements made by the State-owned Assets Supervision and Administration Commission of the State Council, CNPC has built and continuously perfected the legal person governance structure with clearly defined rights and responsibilities among the board of directors and senior executives, to ensure that each department carries out its own duties with effective balance, scientific decision-making and coordinated operations. We established the statutory status of the Party group in the corporate governance structure, strengthened our supervision and accountability system with a focus on system building and fulfillment of responsibilities, and realized clear control objectives, effective integration of resources and optimal efficiency and effectiveness. We also enhanced corporate social responsibility performance and achieved sustainable growth.

Governance Structure

Board of Directors

The Board of Directors consists of seven members. The Board has four affiliated committees, the Strategic Development Committee, the Nomination Committee, the Evaluation and Remuneration Committee and the Audit and Risk Management Committee, which are designed to provide advice and recommendations for Board decisions. According to the Articles of Association of CNPC and Board of Directors Authorization Management of CNPC, the Board of Directors issues conventional authorization on decision-making regarding corporate operations to the Chairman.

Key Work of the Board of Directors in 2018

In 2018, through studying and implementing the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we intensified our efforts to strengthen system management, implemented the accountability system for Party building, regulated grassroots party building, publicized Party building achievements, and deepened key work such as Party building research. Thanks to these efforts, our party building skills were significantly improved.

Key Actions of the Board of Directors

Formulation of development strategies

- Formulate the Company's annual business development plan, investment plans, budget plans, as well as the production and operation plans.
- Promote quality improvement and efficiency enhancement for key operations, assign key strategic tasks for driving the development through reform and innovation in key areas.

Deliberation of major issues

- Deliberate and approve major investment projects, such as the China-Russia Eastern Gas Pipeline, to facilitate the implementation of the Company's overseas strategies.
- Deliberate and approve refinery projects, such as the Abe-ron of Jilin Petrochemical Co. Ltd., to promote the transformation and upgrading of related operations.
- Pay attention to the commissioning managers, and their guidance and advice.
- Organize board meetings, special committee meetings and centralised investigation and survey to communicate on company development and board building.

Attention to team building

- Deliberate on annual audit report, risk management report, and propose improvement suggestions and suggestions.
- Enter the role of audit and risk management committee, guide relevant departments to enhance their accountability in risk management, and implement the major risk response measures.
- Strengthen the risk analysis and response for decision-making for major projects to ensure that the operation objectives are achieved while risks are minimized.

Enhancement of risk prevention and control

- Revised the Compliance Management Measures, specified the positioning and division of duties of full compliance, and developed a Company-wide compliance pattern.
- Revised and released the Integrity and Compliance Manual, and all employees studied it and signed a compliance commitment.
- Optimized measures for assessing operational compliance, and strengthened responsibilities of major business leaders for legal compliance.
- Implemented Company-wide compliance training, carried out various activities for compliance education and publicity.

Compliance Management

The Company regards legal compliance as a basic guarantee for high-quality development under the new situation. Compliance is of overriding importance. Therefore, we put legal compliance above economic interests, established the strategic position of compliance management, and further defined the responsibility of comprehensive compliance management. At the headquarters and in our regional subsidiaries, we continuously intensify compliance demonstration and review in respect of major decisions and major issues, and strengthen the prevention and control of compliance risks, so as to ensure management according to law and legal compliance in our operation. We strictly implement national laws and regulations and government regulatory requirements, and keep strengthening compliance management in key areas. We have therefore basically put in place a compliance management mechanism that gives top priority to prevention and attaches equal importance to punishment and prevention, and a general compliance management pattern featuring division of work, joint management and coordination. The awareness of compliance among our employees is strengthened, and an increasingly intense atmosphere for compliance is being created.

The Company strictly upholds business ethics, credibility and integrity in its operations. We obey international covenants and laws and regulations of the countries where we operate, respect trade controls and fight against corruption, bribery, monopoly, and unfair competition of any form. We deal with our suppliers, contractors, customers, government departments, partners and competitors and other stakeholders in a fair and honest manner. We are committed to business integrity to win respect.
Corporate Social Responsibility Management

Corporate Citizenship Philosophy
For a company, fulfilling corporate social responsibility is not only a necessary path to achieve economic, environmental and social sustainability, but also an inevitable choice for its own sustainable development; it is not only an external requirement to adapt to economic and social development trends, but also an internal requirement to enhance its sustainability; it is not only an important way to change its development mode and achieve scientific development, but also a strategic requirement for expanding its internationalized operation.

Upholding the corporate mission of "Caring for Energy, Caring for You", we aim to achieve the organic unity of economic, environmental and social responsibilities, and strive to become an outstanding global corporate citizen with higher profitability, stronger influence, and a greater charisma to society. We have never relented in our efforts to implement our social responsibilities, adhere to legal operation, be honest and trustworthy, conserve resources and protect the environment, insist on the people-oriented principle and build a harmonious enterprise, in order to make return to society and realize value sharing.

Management Mechanisms
At CNPC, we take it as a fundamental work to establish and improve the social responsibility management mechanism for advancing responsibility management. Focusing on system establishment, organizational structure and capability building, we have established a set of comparatively complete mechanisms on social responsibility management.

System Building
We have developed working rules and regulations on economic, environmental and social responsibilities, laying a solid foundation for the fulfillment of social responsibilities. In 2018, we continued our efforts to build and improve social responsibility management systems and promote social responsibility management according to the Guideline on Better Fulfilling Corporate Social Responsibility for the SOEs by SASAC and Guideline of CNPC on Fulfilling Social Responsibility.

Organizational Structure
CNPC has established Social Responsibility Management Committee to make major decisions on social responsibility policies and planning. The Committee is composed of heads of the function departments at headquarters. Meanwhile, we have established the External Experts Committee and regularly hold communication meetings to solicit professional advice on social responsibility management and practices, and to provide support for our decision-making. Under the General Office of the Company, we have set up the Social Responsibility Office for CSR implementation, which is responsible for organizing and coordinating the planning and implementation of our social responsibility work. A working mechanism has been established, in which the Committee takes the lead, departments in charge organize the work, business sectors take respective responsibilities and affiliates are fully engaged. This has effectively ensured the progress of our social responsibility concepts and planning.

Capability Building
We actively carry out research in the field of social responsibility, promote CSR education and training, and boost CSR communication with relevant organizations home and abroad, so as to continue enhancing CSR awareness and the capability for fulfilling responsibilities among all employees. In particular, special research has been carried out to provide a useful reference and basis for implementation of independent public welfare projects.
Communication with Stakeholders

Stakeholders are the groups or individuals who are able to influence corporate decisions and activities or are subject to influence from corporate decisions and activities, including government, employees, customers and consumers, partners, relevant agencies and communities, etc. Stakeholder participation in CSR work can help deepen mutual communication, understanding, trust and cooperation, and is beneficial to the Company’s development.

We adhere to the principles of honesty, interaction and equality, and actively establish and improve the mechanism of stakeholder participation. We introduce a variety of ways to collect and analyze the expectations and concerns of our stakeholders, enhance our communication with stakeholders, and invite them to participate in decision-making and activities related to our sustainable development. In addition, we learn from international standards and advanced experiences at home and abroad to continuously improve stakeholder participation.

Increasing Routine Disclosures

Through the Company’s website and its microblog, WeChat, micro portals, mobile platforms, barrier-free reading and other new media, we enrich information disclosure on social responsibility and enhance the effectiveness of our communications.
Expanding Public Communication Channels

In 2018, we encouraged stakeholders to participate in the Company’s major decision-making and activities, and provided the media and the general public with a better understanding of CNPC. We introduced a variety of ways to enhance communication with our stakeholders including the staff congress, announcements, seminars, and dialogues. We also launched a series of activities including the Service Station Open Day, CNPC Open House Day, mystery customer visits, and other activities allowing visits to CNPC.

In partnership with China Youth Daily and China University Media Union, we launched the campaign to invite outstanding student reporters to visit CNPC for the fifth consecutive year. One hundred student reporters from Chinese colleges and universities were invited to the Company to get a real picture of CNPC, especially of its strength, spirit and responsibilities.

We invited 200 media reporters to production lines in Daqing Oilfield, Qinghai Oilfield, Mahu Oilfield, Gas Storage of Southwest Oil and Gas Field, Eastern Route of Russia-China Gas Pipeline and other projects, providing them with an opportunity to conduct on-site interviews with petroleum workers to have a better understanding of the Oil Spirit.

Campaigns to Present a Different CNPC

People from all walks of life visited refinery of Lanzhou Petrochemical

Environmental volunteers visited the control room for refining crude oil from Russia in Liaoyang Petrochemical

Resident representatives got access to environmental monitoring real-time data of Dagang Petrochemical

An associate professor of Xiamen University of Technology explained to the public why a 45L fuel tank can refill 47 liters of oil

People from all walks of life visited the Tarim Oilfield Exhibition Hall

The media friends visited Shandong Marketing Company

Service station open day
## Stakeholders

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| Government   | • Guarantee energy security  
• Stabilize market supply  
• Fulfil social responsibility  
• Energy conservation and emission reduction  
• Strengthen operation in compliance with all legal requirements  
• Deepen enterprise reform  
• Guarantee investors’ interests | • Support trade unions at different levels  
• Hold staff congresses  
• Reinforce staff training  
• Improve salary distribution system  
• Hold contests and evaluations | • Change the mode of development, increase resource potential, promote technological innovation, maintain sound operations and increase the value of state-owned assets  
• Safeguard energy supply and optimize energy mix, in coordination with national energy strategy  
• Promote the building of national key laboratories and major scientific and technological innovation projects |
| Employees    | • Guarantee employees’ rights and interests  
• Employee career development  
• Employee value realization  
• Employee health and safety | • Safeguard consumers’ interests  
• Supervise product quality  
• Solicit the opinions of customers and consumers | • Improve the staff development mechanism  
• Enhance employee training by hosting professional skills competitions  
• Protect the legitimate rights and interests of employees, including remuneration, education and training, rest and vacations, and labor protection  
• Continue to organize occupational health examination and poverty alleviation activities |
| Customers and consumers | • Provide safe, environmentally friendly, and high-quality products  
• Provide quality services  
• Improve customer satisfaction  
• Establish communication mechanisms  
• Advocate sustainable consumption patterns  
• Protect consumer privacy  
• Improve consumer complaints mechanism | • Increase clean oil supply and realize supply of National VI standard gasoline and diesel nationwide  
• Further promote the CNPC Quality Month Campaign  
• Provide natural gas and other clean energy products  
• Establish a unified service station management system and launch overall inspections on service stations  
• Implement customer satisfaction investigation and conduct mystery customer visits | • Increase clean oil supply and realize supply of National VI standard gasoline and diesel nationwide  
• Further promote the CNPC Quality Month Campaign  
• Provide natural gas and other clean energy products  
• Establish a unified service station management system and launch overall inspections on service stations  
• Implement customer satisfaction investigation and conduct mystery customer visits |
| Business partners | • Comply with national laws, regulations and business ethics  
• Standardize HSE management  
• Fair competition, mutual benefits  
• Promote social responsibility in the value chain | | |
| NGOs and relevant organizations | • Participate in discussion on public policy and industry standards  
• Pay attention to industry trends and policy moves  
• Advance the sustainable development of enterprises and industries  
• Carry out cooperation in social development and environmental protection | • Share corporate experience  
• Attend related meetings and forums  
• Facilitate international exchanges and cooperation | • Advocate fair competition, Standardized operations, and promote the use of e-procurement and management platform  
• Strengthen control over key processes including design, procurement, construction and supervision, and strengthen HSE management for suppliers and contractors |
| Communities and the public | • Promote community development  
• Protect community environment  
• Increase local employment  
• Support education, public health and other public welfare activities  
• Perform social investment  
• Enhance sustainable development capacity | | |
| Our Actions | • Comply with national laws, regulations and business ethics  
• Standardize HSE management  
• Fair competition, mutual benefits  
• Promote social responsibility in the value chain | • Increase clean oil supply and realize supply of National VI standard gasoline and diesel nationwide  
• Further promote the CNPC Quality Month Campaign  
• Provide natural gas and other clean energy products  
• Establish a unified service station management system and launch overall inspections on service stations  
• Implement customer satisfaction investigation and conduct mystery customer visits | • Comply with national laws, regulations and business ethics  
• Standardize HSE management  
• Fair competition, mutual benefits  
• Promote social responsibility in the value chain |
Since China’s reform and opening up, especially since the 18th National Congress of the Communist Party of China, CNPC has implemented the strategy of Resources, Markets, Internationalization, and Innovation by conscientiously implementing the decisions and arrangements of the CPC Central Committee and the State Council, in an effort to build the company into a world-class integrated international energy company. Through unremitting efforts in deepening reform and expanding open cooperation, the Company has effectively promoted the transformation of its development mode and improved development quality, and made important contributions to guaranteeing national energy security, carrying out clean production and promoting green development.

Safeguarding National Energy Security

Over the past four decades, CNPC’s domestic accumulated newly-added proven oil and gas in place (including shale gas and CBM) have respectively made up over 60% and 70% of the national total, and the Company has produced an accumulative total of more than 4 billion tons of crude oil and nearly 1.5 trillion cubic meters of natural gas, accounting for 60% and 70% of the national total, respectively. By the end of 2018, we have established five 10Mt-grade oilfields including Daqing, Huabei, Liaohe, Xinjiang, and Changqing oilfields, and three 10bcm-grade gas fields including Southwest, Tarim, and Changqing gas fields. Our oil and gas production at home and abroad in 2018 doubled that of 1998, with domestic oil and gas production standing at 101.017 million tons and 109.37 billion cubic meters respectively. Additionally, CNPC has guaranteed stable oil and gas supply during major events such as the Olympic Games, World Expo, APEC and G20 Summit and for relief works of major natural disasters.

CNPC: Provider, Contributor and Adherent of Green and Clean Energy

As a major player in the construction and investment of oil and gas pipeline networks in China, CNPC started with only a few pipelines with a total length of less than 10,000 km before China’s reform and opening up, and has now basically completed the domestic oil and gas pipeline network, with natural gas, crude oil and refined oil pipelines stretching a total of 86,734 million km. CNPC has thereby made positive contributions to safeguarding China’s national energy security, and played its leading role as a key state-owned enterprise.

Promoting Green Development

CNPC is the largest oil and gas producer and supplier in China, and serves as a provider, contributor and adherent of China’s green and clean energy. The Company is devoted to natural gas development, and has supplied an accumulative total of 1.69 trillion cubic meters of natural gas to the domestic market through domestic production and imports over the past four decades. This accounts for more than 70% of the national total and is equal to the substitution of 3.41 billion tons of standard coal, and a reduction of 6.31 billion tons of carbon dioxide, 43 million tons of sulfur dioxide, 24 million tons of nitrogen oxides, and 12.5 million tons of soot and other particulate emissions, laying a solid foundation for the national campaign of “winning the battle for blue skies.” We actively promote the upgrading of oil product quality by setting upgrade plans in advance and actively promoting technological transformation according to national planning and deployment, and have comprehensively accomplished each quality upgrading task on schedule. The Company has completed three rounds of oil product quality upgrading in 10 years, going through a process which took nearly 20 years in Europe and America.

CNPC continuously improves its environmental performance in the process of production and operation and actively participates in public welfare endeavors to promote ecological progress. In the past five years, we have saved an accumulative total of 5.11 million tons of standard coal equivalent, 83.16 million cubic meters of water, and 6,000 hectares of land, with the emissions of major pollutants on the decline year by year. The Company makes an average annual investment of RMB 1.24 million in environmental public welfare undertakings, and has built more than 20 million hectares of carbon sink forests in 13 provinces (municipalities and autonomous regions) in China. Thanks to these efforts, CNPC was named a “Low Carbon Model in China” for eight consecutive years, and has won over 30 environmental protection awards in the countries along the Belt and Road.

<table>
<thead>
<tr>
<th>Our domestic marketing volume of crude oil</th>
<th>Our domestic marketing volume of natural gas</th>
<th>Our domestic marketing volume of refined products</th>
</tr>
</thead>
<tbody>
<tr>
<td>101.017 million tons</td>
<td>172.42 billion cubic meters</td>
<td>117.358 million tons</td>
</tr>
</tbody>
</table>

53.4% CNPC’s share of crude oil production in the national total

70.2% CNPC’s share of natural gas production in the national total
It is CNPC’s due responsibility and mission to meet energy challenges and satisfy the ever-increasing demand for low carbon clean energy. To this end, we have enhanced technological innovation, laid a solid resource basis, continued to increase our efficiency in hydrocarbon development and utilization, and raised the proportion of clean energy such as natural gas in our energy supply, in order to make contributions to the construction of a stable, safe, clean and economical energy supply system and the prosperity of human society.

### Energy and the Future

#### Opportunities and Challenges

**Continuous growth in energy demand.** The world population is projected to reach more than 9 billion in 2050 by the United Nations’ World Population Prospects. Population growth, together with urbanization in developing countries and industrialization, will continue to drive the growth of global energy demand and consumption.

**The trend of energy transition.** Energy transition is a prominent feature of global energy development. Developing clean and low-carbon energy has become a consensus shared by governments, different industries and the society. Nevertheless, fossil fuels will remain the main source of energy for decades to come, and will continue to dominate the energy market for a long time in the future.

**Inevitable transition to clean and low-carbon development.** Climate change has become a major issue affecting the destiny of the whole world and all mankind. The Paris Climate Conference has set the goal of limiting global warming below 2°C by the end of the century, and that the future lies in low carbon and low energy intensity development.

**The pivotal role of natural gas.** Natural gas is the only low-carbon and clean energy in fossil energy. Accessible, affordable and sustainable, it has become the fastest growing fossil energy and is expected to reach 30% in primary energy consumption by 2050.

**Equal access to energy.** Over 1.2 billion people in the world still do not have access to affordable modern energy, losing the opportunity for equal development. Helping this group of people have equal access to energy is an important part of achieving the Sustainable Development Goals (SDGs) of the United Nations.

**The consensus of global cooperation.** The energy transition featuring low carbon and carbon-free development calls for all-round international exchanges and cooperation in advanced technology, management concept, and knowledge and experience. A wide range of global energy cooperation will help countries jointly cope with new energy security risks.

#### Forecast of global primary energy demand by category by 2050 *

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Proportion of Energy Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>27%</td>
</tr>
<tr>
<td>Natural gas</td>
<td>19%</td>
</tr>
<tr>
<td>Coal</td>
<td>8%</td>
</tr>
<tr>
<td>Hydroelectric power</td>
<td>14%</td>
</tr>
<tr>
<td>Nuclear power</td>
<td>5%</td>
</tr>
<tr>
<td>Other renewable energy sources</td>
<td>14%</td>
</tr>
</tbody>
</table>


#### Forecast of global energy consumption mix forecast by 2050 *

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Proportion of Energy Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>9%</td>
</tr>
<tr>
<td>Natural gas</td>
<td>31%</td>
</tr>
<tr>
<td>Hydroelectric power</td>
<td>8%</td>
</tr>
<tr>
<td>Nuclear power</td>
<td>6%</td>
</tr>
<tr>
<td>Other renewable energy sources</td>
<td>46%</td>
</tr>
</tbody>
</table>


#### SDGs

- **0: No Poverty**
- **1: No Hunger**
- **3: Good Health and Well-being**
- **8: Decent Work and Economic Growth**
- **9: Industry, Innovation and Infrastructure**
- **17: Sustainable Development Goals**

* support the UN’s goal of “Ensuring access to affordable, reliable, sustainable and modern energy for all”

* actively respond to the Chinese government’s “13th Five-year Plan for Energy Development” and intensify our efforts to promote the energy revolution.
Strategic Response

The world is undergoing a profound and rapid energy transition towards a cleaner, more efficient and diversified energy structure. The oil and gas industry shoulders important responsibility in meeting global energy challenges. As a major player in the industry, CNPC has been actively cooperating with the government and companies in the industry chain, and strives to provide clean, low-carbon and affordable energy while meeting future energy demand, in an effort to jointly build a sustainable energy future.

Oil and gas will remain the world’s primary energy source for a long time to come. In the short to medium term, the Company will still focus on oil and gas business, while strengthening restructuring of oil and gas operations. First, we will increase the share of domestic natural gas production, and expect to see the ratio of our domestic oil and gas production equivalent reach 1:1 by 2020, enabling more low-carbon energy supply. Second, we will increase the share of overseas oil and gas production. By 2020, the share of our overseas oil and gas equity production will rise to over one third of the company’s total. Third, we will strengthen the development of unconventional resources, especially shale oil and gas and tight oil and gas.

While intensifying our efforts in restructuring oil and gas operations, we will actively deploy new business. First, we will steadily promote fuel ethanol business; second, promote the use of associated resources such as geothermal energy; third, make greater efforts in the research of new energy business, so as to lay a solid foundation for future planning and development.

Technology and Innovation

Advanced and applicable energy technology enables us to provide more and cleaner energy, and address global issues such as climate change and enhancement of energy utilization efficiency.

Thanks to theoretical innovation and technological breakthroughs, CNPC increases efficiency in the development and utilization of existing resources, explores new areas of energy development, and develops green production technology to provide energy for society in a more responsible way.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Measures</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase both reserves and production under complex geological conditions</td>
<td>• Continue to deepen the theories on ancient carbonate rock reservoir formation and deep zone exploration • Continue to improve technologies such as development of unconventional, deep and ultra-deep and complex structure reservoirs</td>
<td>• Discovered a 1 billion-ton-grade giant uncompartmentalized conglomerate oilfield in Mahe, Xinjiang • Discovered 100 bcm-grade condensate gas reserves in Tarim (Well Zhuzhou No. 1) • Drilled a high-yield volcanic rock industrial gas well in the Sichuan Basin • Obtained high-yield commercial oil flow in the southern margin of the Junggar Basin, showing probability to discover large-scale blocks for reserves and production growth • Formulated the domestic exploration and production development plan from 2019 to 2025</td>
</tr>
<tr>
<td>Improve energy efficiency, reduce costs and ensure energy security</td>
<td>• Integrate information technology into the oil and gas industry • Integrate technologies such as ‘Cloud computing, big data, and internet of things’ into the whole process of the company’s production and operation</td>
<td>• Digital Oilfield: Changying Oilfield realized unmanned operation in gas gathering stations and used drones to patrol wells • Intelligent Offshore: introduced new mode of Service Station + Internet + ‘N’ • Intelligent Pipeline: took the Eastern Route of Russia-China Gas Pipeline as a pilot project to construct intelligent pipelines featuring comprehensive and unified data, interaction and visualization for perception, system integration and interconnection, accurately matched supply, intelligent and efficient operation, and controllable forecast and warning • Intelligent Service Station introduced new mode of Service Station + Internet + ‘N’</td>
</tr>
</tbody>
</table>

Promote green, low-carbon development

<table>
<thead>
<tr>
<th>Objective</th>
<th>Measures</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Science and Technology Major Project: key technology for environmental detection and protection for the development of shale gas and other unconventional oil and gas • CNPC-level R&amp;D Projects: CNPC research and application of key technology for low-carbon and clean production, refining energy system optimization, upgrading and application • CNPC’s major field tests: demonstration project of harmless treatment and recycling of drilling waste • Strengthen research on basic, forward-looking and generic technologies to sustain development momentum: research and promotion of key HSPE technologies</td>
<td>• Provided complete sets of environmental protection technologies to support the green and sustainable development of the unconventional oil and gas industry in terms of policy and standard systems, environmental risk assessment and monitoring, and pollution prevention technology and equipment • Focused on pollution prevention and treatment and waste recycling, accelerated the application and promotion of low-carbon technologies and the development of low-cost technologies, and provided technical support for the Company to promote low-carbon, green development • Systematically addressed major issues for clean production and pollution prevention and treatment at the source and throughout the process during oil and gas drilling and downstream operation • Organised basic and advanced research on seven disruptive, leapfrogging technologies such as ‘site pollution prevention and control and remediation’ to support the green, low-carbon and sustainable development of the Company • Successfully developed and was capable of supplying National VI standard gasoline and diesel • Continued to lower indicators such as comprehensive energy consumption for refining and ethylene combustion energy consumption</td>
<td>• Provided complete sets of environmental protection technologies to support the green and sustainable development of the unconventional oil and gas industry in terms of policy and standard systems, environmental risk assessment and monitoring, and pollution prevention technology and equipment • Focused on pollution prevention and treatment and waste recycling, accelerated the application and promotion of low-carbon technologies and the development of low-cost technologies, and provided technical support for the Company to promote low-carbon, green development • Systematically addressed major issues for clean production and pollution prevention and treatment at the source and throughout the process during oil and gas drilling and downstream operation • Organised basic and advanced research on seven disruptive, leapfrogging technologies such as ‘site pollution prevention and control and remediation’ to support the green, low-carbon and sustainable development of the Company • Successfully developed and was capable of supplying National VI standard gasoline and diesel • Continued to lower indicators such as comprehensive energy consumption for refining and ethylene combustion energy consumption</td>
</tr>
</tbody>
</table>

| Investment in technological research and development: 27,698 million RMB | 27,698 |
| Key laboratories and experiment bases | 54 |
| Senior technical experts | 303 |
| Researchers | 30,000 |

CNPC Innovative Technologies Winning National Awards in 2018

<table>
<thead>
<tr>
<th>Technology</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory and technology for conglomerate exploration in sag area and the discovery of the 1 billion-ton-grade giant Mahu Oilfield</td>
<td>First-prize of National Science and Technology Progress Award</td>
</tr>
<tr>
<td>Key technology for oil and gas pipeline system integrity and its industrial application</td>
<td>Second-prize of National Technical Invention Award</td>
</tr>
</tbody>
</table>
Clean Energy

In order to secure sustainable supply of clean energy in the future, we have been vigorously developing natural gas business, continuously enhancing the quality of oil products and exploring new energy development to meet market demand for clean and high-quality energy.

Natural Gas

CNPC deems natural gas exploration and development as a strategic and growth-oriented project, keeps accelerating the construction of transnational natural gas pipelines and domestic natural gas pipeline network, promotes the development of conventional natural gas and unconventional gas such as tight gas, shale gas and coalbed methane, and imports overseas natural gas to build a diversified energy supply system.

In 2018, the Company produced 138.02 billion cubic meters of natural gas, including domestic production of 109.37 billion cubic meters, up by 5.9% year-on-year and accounting for 70.2% of the national total. CNPC increased the import of natural gas from overseas pipelines and LNG while working to increase its production capacity. We supplied 172.42 billion cubic meters of natural gas to the society, an increase of 13.6% over the previous year, providing a strong support for the optimization of China’s energy structure and the construction of a beautiful China.
Production Capacity

By the end of 2018, the Company’s natural gas production capacity was 110.6 billion cubic meters.

Unconventional natural gas

Shale gas

- Prepared CNPC’s Special Plan for Shale Gas Development 2017-2030
- An annual gas production capacity of 6.6 billion cubic meters in southern Sichuan, including 4.264 billion cubic meters of gas production from state-level shale gas demonstration zones at Changning-Weiyuan and Zhaotong, and daily production of 20 million cubic meters to ensure supply in winter
- Made significant progress in deep shale gas evaluation in western Chongqing

Coalbed methane

- Completed two coalbed methane industrial bases in Qinnan and Edong, with annual production capacity of 2.2 billion cubic meters
- Added 52.4 billion cubic meters of proven CMB reserves, and produced 1.934 billion cubic meters of coalbed methane

Clean energy supply

- As of late 2018, the first, second and third Shaanxi-Beijing Gas Pipelines had delivered a total of 205.6 billion cubic meters of natural gas to the Beijing-Tianjin-Hebei region. The combustion value of which equaled to CO2 emission reduction of 292 million tons, SO2 emission reduction of 4,523,100 tons, smoke dust reduction of 186 million tons
- All the refining and chemical enterprises have completed National VI standard oil product upgrade, supplying National VI oil products to the “2+26” cities in the Beijing-Tianjin-Hebei region and surrounding areas in advance

Pollution control

- All subsidiaries achieved “zero coal consumption” in “2+26” cities in the Beijing-Tianjin-Hebei region
- Low-nitrogen transformation of gas boilers in Beijing
- Oil and gas recovery operation in our service stations and VOC control in refining and chemical enterprises improved comprehensively, and the oil and gas emission concentration of service stations (depots) met relevant standards and requirements
- Automatic monitoring facilities were installed at all elevated emission sources and were connected with the network of the local government

Utilization of Natural Gas and Alternative Fuels

We actively promote the comprehensive utilization of natural gas in city gas, industrial fuels, natural gas power generation, chemical feedstock and vehicle fuels. In 2018, the Company vigorously promoted coal-to-gas projects, and achieved full coverage of “coal to gas” in Baizhou, Zhuzhou, Baoding, Qinhuaixiao, Tangshan and Hengshui of Hebei province.

CNPC’s Measures to Secure Market Supply during Special Periods in 2018

Agricultural production

During spring plowing, summer planting, summer harvesting and summer field management, we
- Surveys oil demand, develops plans to secure supply, and opens green channels
- Schedules resources availability, and coordinates distribution of fuels in advance

Natural disasters

In response to heavy snowfalls in the three provinces in Northeast China, torrential rains in Minxian County, Dingxi, Gansu province, earthquakes in Jiuquan of Gansu province and Tonghai in Yuxi of Yunnan province, and landslides resulting in barrier lake in Jinsha River, Tibet, we
- Started an emergency plan to secure oil supply
- Opened green channels to secure oil supply for disaster relief
- Ensured adequate oil supply for disaster relief

Major national events

During the Forum on China-Africa Cooperation (FOCAC) in Beijing and Shanghai Cooperation Organization (SCO) Summit in Qingdao, we
- Planned in advance and carefully organized supply
- Guaranteed stable supply of resources

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Sustainable Energy Supply

Upgrading of Refined Products

We promote the optimization of the energy consumption mix through upgrading quality of energy products. In 2018, we invested more than RMB 3.4 billion in building a batch of refined oil quality upgrading projects, and all of our refining and chemical enterprises completed oil product quality upgrading to National VI standard. In 2018, we supplied 117.538 million tons of refined oil (gasoline and diesel) to the domestic market, accounting for 36.1% of the domestic market share.

New Energy

With an eye on the future, we continued to promote the development and utilization of renewable energy including geothermal energy and biofuels. In 2018, CNPC continued to expand its new energy business, such as geothermal energy, solar energy, biofuels, and charging and battery swap stations.

- **Fuel ethanol**
  - 600,000 tons every year
  - CNPC’s subsidiary Jilin Fuel Ethanol Company is capable of producing 600,000 tons fuel ethanol.

- **Geothermal energy**
  - 1.8 million tons every year
  - CNPC’s subsidiary Jilin Fuel Ethanol Company is processing over 1.8 million tons of corn every year
  - 480 million RMB
  - The Company invested RMB 480 million in 2018
  - The Company actively respond to Three-Year Action Plan to Win Battle for Blue Skies
  - Work Plan for the Acceleration of the Quality Upgrading of Refined Oil

Energy Cooperation

International energy problems can’t be solved without cooperation. Upholding the principle of “mutually beneficial cooperation for common development,” we give play to our advantages in integrated businesses, capital, technology and managerial expertise, and cooperate with host governments and partners to address local energy challenges, in order to meet local energy demand and maintain regional energy security.

International Energy Cooperation

In response to low oil prices and regional turmoil, we worked hand in hand with the government of the host countries and our partners to guarantee the stable operation of cooperation projects. Leveraging China’s Belt and Road Initiative, we entered into a number of cooperation agreements with companies in Central Asia, Middle East and some other regions, and carried out all-round cooperation in such areas as upstream, downstream, trade and marketing, and technical support. Therefore, we have achieved cooperation throughout our industry chain and value chain. In 2018, CNPC produced 1.7239 million tons of oil and gas equivalent overseas, with CNPC equity production of 98.18 million tons, up 16.29% year-on-year. The Company made due contributions to meeting energy demand in host countries and supporting local economic development.

Joint E&P in China

We continue to make steady progress in cooperation with international partners in developing oil and gas resources in China. While deepening cooperation in conventional areas, we reinforced cooperation with IOCs in shale gas and other unconventional resources. The South Sutlej Project was in steady progress, with an annual gas output of more than 2.24 billion cubic meters. The Chuanzhong Project in Sichuan Province increased its daily gas collection and transportation from 680,000 cubic meters to 1.2 million cubic meters, further securing gas supply in winter. Our domestic oil and gas production equivalent in cooperation with international partners amounted to 10.118 million tons in 2018.

International Trade

Supported by our overseas operation hubs and trade networks, we conduct international trading through cooperation and joint ventures in over 80 countries and regions around the world, constantly improving our resource deployment capability. In 2018, we reported 480 million tons of international trading volume, and witnessed further improvements in both scale and operational quality.

Creating and sharing value through services

Positioning and development of overseas operation hubs

Operation hub in Europe:
- to become a member of “Brent Elite Club”
- to gradually develop into an industry leader in Asia

Operation hub in Asia:
- to become an important platform of INTRIP spot trading and heavy high-nitrogen gas

The first ultra-deep sea project to achieve investment recovery:
- the first shipment of equity oil from Brazil’s Libra Project arrived at the refinery for processing and sales

The first shipment of LNG from Yamal Project arrived at China:
- 75,000 tons of LNG, which can meet a day of gas consumption for 200 million households

Creating and sharing value through services
- to become an important platform of INTRIP spot trading and heavy high-nitrogen gas

Positioning and development of overseas operation hubs
- to become a member of “Brent Elite Club”
- to gradually develop into an industry leader in Asia

34 CNPC operates in 34 countries and regions
92 CNPC operates 92 oil and gas projects globally
77 CNPC provides technical service and engineering construction for 77 countries and regions
We are always committed to the principle of "people-centered, quality foremost, safety first, environment prioritized" to achieve "zero defects, zero injuries, and zero pollution". We regard providing clean energy, minimizing environmental impact and reducing emissions as the strategic foundation for the Company's sustainable development.

The Company continues to improve the quality management of product and service, and promote safe, environmentally-friendly and resource-saving operations, in order to promote the construction of an ecological civilization and develop a resource-saving and environmentally-friendly enterprise.

Safe Operation

We actively promote the building of a long-acting safety system and comprehensively enhance our work safety management. In 2018, the Company maintained a stable improvement in safety performance.

Management System and Performance Assessment

In 2018, we enacted and amended nine regulations including Regulations on Management of Production Safety and Measures for the Supervision and Management of Hazardous Chemicals. We enhanced auditing quality of HSE management system, and put more efforts in rectifying problems found in auditing. We revised the detailed regulations on the assessment of safety performance, and strengthened performance evaluation and accountability system for accidents.

Hazard Control

We attach equal importance to both prevention and control of hazards, and build a long-acting mechanism for hazard control, so as to ensure all hazards are timely and effectively treated and enhance the fundamental safety of the Company. In 2018, we continued to conduct treatment of pipeline hazards by carrying out targeted safety inspection on key projects including the Fouth Shaanxi-Beijing Gas Pipeline and Zhongwei-Jingbian Pipeline.

Safety Risk Management

We fully strengthened management and control over safety risks in the production process, implemented a dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and established a classified risk prevention and control system; so as to eliminate safety risks and potential hazards to prevent accidents. In 2018, we formulated and released the enterprise classification standard based on safety risks, took targeted management and control measures in subsidiaries facing different types of risks, and conducted all-factor auditing and special auditing in subsidiaries concerned. We introduced new methods for safety supervision and management and formulated a working mechanism for joint supervision and management involving local governments and our subsidiaries. We pushed forward the building of a dual-prevention mechanism, and double-checked sources for major risks. In addition, the Company compiled a checklist for management and control responsibility of company-level major safety risks, and formulated and implemented risk prevention and control mechanism with the aim to effectively prevent and control all types of safety risks.

Supply Chain Safety

We included suppliers and contractors into our safety management, and had an all-process management on their access, selection, training, use and evaluation, so as to prevent and reduce accidents caused by suppliers and contractors.
Personnel safety has always been an overriding priority in our operations. We constantly reinforced the operation of social security management system, fully strengthened social security risk prevention and control, and continuously enhanced emergency response capabilities. In 2018, we fully strengthened systematic management, implemented management on a regular basis, and braided ourselves for changes in local security situations in major countries. There were no fatalities in our overseas projects concerning social security.

We strengthened supervision and management of contractors, and continuously reduced safety risks in our operations:

- We made it compulsory for external construction to be trained and certified
- We strengthened access control on the construction site
- We strengthened around-the-clock supervision during construction
- We reinforced accountability system for accidents caused by contractors
- We improved the blacklist system for contractors

We strengthened around-the-clock system for accident prevention and control, and further enhancing our comprehensive emergency response capabilities.

In 2018, we made unremitting efforts to improve our emergency management system. In 2018, the version 2.0 of our emergency management system was launched, enabling the support system for the Company's emergency platform to leapfrog from the stage of platform building to the stage of deep integration and application, and further enhancing our comprehensive emergency response capabilities.

CNPC Supply Chain Safety Management Process

- Implement safety qualification screening system for contractors and suppliers
- Establish safety performance records
- Regularly publish the list of qualified contractors, and remove unqualified contractors from it

- Promote the "dual certification" mechanism for contractors' management personnel
- Provide training on system construction, the system audits, safety management and emergency response

- Establish safety performance evaluation system
- Carry out safety capability assessment, daily safety performance evaluation, and comprehensive safety performance assessment
- Strictly hold accountable for those who violate national workplace safety laws and regulations and contracts
- Contractors with minor accidents will no longer be engaged, contractors with major accidents will be restricted from bidding, contractors with major accidents will no longer be engaged

- Conduct targeted safety inspection of contractors

Hazardous Chemicals Management

We exercised full process management on hazardous chemicals covering production, storage and transportation. In 2018, we carried out targeted inspection on progress made in comprehensive safety management of hazardous chemicals in key subsidiaries including Daqing Petrochemical and Fushun Petrochemical.

Emergency Management

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Overseas Security Management

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Environmental Protection

We take the initiative to evaluate the environmental impact of our management and activities, and make efforts to reduce adverse effects on the environment and climate. By improving the resource utilization efficiency, implementing the Clean Air Act, and promoting energy conservation and emission reduction, we strive to achieve environmentally-friendly and resource-saving operations and vigorously advocate ecological civilization, in order to achieve harmonious development with the environment.

Strengthening Risk Prevention and Control

We carried out environmental risk identification and assessment, and implemented a risk prevention and control management model focusing on environmental forecasting, pre-warning and monitoring. We began the environmental risk management at an earlier stage, and established a sound risk management mechanism featuring "management in tiers, prevention and control by levels"; in order to ensure overall control over environmental risks. In 2018, the Company fully conducted hazard management by levels and classified supervision of subsidiaries, and carried out strict management of operation permits. No major environmental accidents were reported and all major pollutants reduction targets were achieved.
Sustainable Use of Resources

We attach great importance to the protection and rational utilization of resources. We strengthen the protection of water, conservation of freshwater and rational use of land, and strive to improve energy and material utilization efficiency to minimize resource consumption.

Water Resources

We endeavor to improve water utilization efficiency and realize sustainable use of water throughout various links in our production and operation activities. Through strengthening water utilization process management, adopting technologies for water-saving and wastewater treatment and recycling, and integrating water-saving indicators into performance evaluation and other measures, we worked to reduce the use of fresh water. In 2018, we saved 12.13 million cubic meters of water.

Eco-environmental Management in Full Life Cycle throughout the Industry Chain

We focused on managing the impact on water resources by construction projects and the risk of leakage accidents during pipeline operations. Environmental impact assessments (involving water environment) were conducted, and water conservation and protection concepts and awareness were integrated into construction and operation activities.

We improved water consumption efficiency by promoting clean production processes, saving water at the source, and optimizing water consumption systems. We increased the consumption time of circulating water to reduce water supplement, and strengthened steam condensate water recovery to achieve water saving. In addition, we emphasized wastewater discharge and reuse to reduce wastewater discharge and improve the industrial water recycling rate; and enhanced underground pipelines to reduce groundwater leakage rate.

In 2018, we saved 12.13 million cubic meters of water.

In 2018, we saved 12.13 million cubic meters of water.

Land Resources

On the principle of scientific siting, efficient use, proper protection, and timely restoration and through innovation in land-saving technologies and management models, we made careful and intensive use of land during production, strictly controlled land use growth, made good use of land in various ways, proactively reclaimed land, carried out environmental treatment and recovery in mining areas, and enhanced land use efficiency. In 2018, we saved 1,253 hectares of land.

Energy

We have been striving to reduce the consumption of fossil fuels and increase energy efficiency by reducing energy intensity. We paid high attention to energy conservation at the source, and carried out energy-saving assessments of newly-built, revamped and expanded projects. We promoted the application of energy-saving technology and equipment to boost the efficiency of heating furnaces in oil and gas fields and optimize refining and chemical energy systems. We reinforced energy use management in the production process, and conducted monitoring and evaluation of energy and water-intensive devices and equipment.

Wastes and Pollutants

We strictly monitored and controlled discharges of waste and pollutants in the production process, strengthened waste management, and reduced discharges of pollutants in the air, land and water. We actively promoted collection measures and recycling technologies for drilling wastes, and Clean operation technologies at our oil and gas fields, significantly reducing wastes and pollutants. In 2018, the Company realized 100% recycling and harmless treatment of drilling wastes, 100% clean operation coverage, and 100% implementation of land reclamation plans.

Energy

In 2018, we reduced energy consumption by 6.40% while the proportion of natural gas consumption in our total energy consumption increased by 7.21%.

Waste Management

We consistently made breakthroughs in drilling waste treatment technologies, optimized hazardous waste management, and improved the efficiency of resource utilization. Changing Drilling Engineering Company used microorganisms in solid drilling waste treatment, achieving a degradation rate of over 90% for the oil substances in the wastes, with the indicators of resulting leachate meeting the first-level standard of the national Integrated Wastewater Discharge Standard and the treated mixture meeting the national standards for soil quality. Compared with conventional solidification treatment, the operation time was down by 30% and cost was down by 20%.

In 2018, with our drilling waste treatment and recycling technologies, the following results were achieved:

- Application to over 7,300 wells; land use down by 726.7 hectares; waste discharge down by 4.5 million tons;
- 56,173.5 tons of oil-based drilling fluids were treated, and 9,400 cubic meters of oil-based drilling fluid was recycled;
- 1.5 million cubic meters of fracturing flow-back fluid was recycled;
- RMB 800 million of benefits were generated.
Hainan Fushan Oilfield Exploration and Development Co. (hereinafter referred to as Fushan Oilfield) is a subordinate company of CNPC and a fully owned subsidiary of China Southern Petroleum Exploration and Development Corporation. Fushan Oilfield practices green exploration and development as well as clean production. The company invested RMB 60 million to build CNPC’s first upstream waste treatment center, realizing 100% harmless treatment and recycling of wastes. A further RMB 120 million was invested in hazard rectification for oil and gas pipelines to ensure fundamental safety. The company used IoT technologies to build a digital oilfield, realizing automatic data collection and full digital monitoring coverage for the entire production process. Efforts were also made to speed up the exploration and development of natural gas as a source of clean energy. In December 2018, the company passed the acceptance check for green production areas.

In accordance with the country's laws and regulations concerning environmentally sensitive areas, we strictly forbid new exploration wells or production programs in wetland reserves, key zones, buffer zones as well as red-line ecological areas and land areas, and gradually withdraw from aforementioned areas in our oil and gas development.

The rosy starling is a migrating bird and a protected species in China for its significant ecological, scientific and social values. In May 2018, tens of thousands of rosy starlings made home at our construction site along the Dunmazha-Nalati expressway on the National Highway 218 (G218). The company working on the site, CNPC Xinjiang Petroleum Engineering Company, suspended all their construction activities so that the birds could breed and nurture their young undisturbed. The company also spent RMB 100,000 on steel pipes and green mesh to build shelters for the birds. The wildlife protection and management office of Yili Kazak Autonomous Prefecture in Xinjiang praised this move as a shining example of putting ecology before economy.

We make every effort to support China’s fulfillment of its responsibilities and obligations under international conventions such as:

- Ramsar Convention on Wetlands
- Convention on Biological Diversity
- United Nations Convention to Combat Desertification

CNPC’s Major Measures for Ecological Protection

- Carry out green mining activities
- Restore the vegetation and plant sand-fixing and windbreak forests in Gobi Deserts
- Promote comprehensive treatment of desertification, rocky desertification and soil erosion
- Implement natural forest protection system
- Continuously monitor and assess the ecological impact of oil and gas development and pipeline construction
- Green ecological oil and gas fields
- Ecological petrochemical industrial parks
- Clean energy towns
- Nature reserves
- Participate in local governments’ afforestation activities

Conservation of Biodiversity and Natural Habitats

We are devoted to reducing the potential influence on ecological environment and biodiversity during production and operation, and take full precautions to avoid environmental impact and work hard to restore the environment to its original state in case of any adverse impact. We make an all-out effort to identify and address environmental pollution and ecological damage, and reduce the impact on the ecological environment by various means, including reducing noise and emissions. We do our utmost to reduce the occupation of cultivated land, protect water and land, and restore vegetation. Various measures are taken to restore the ecological environment in the working areas and protect biodiversity.

Eco-environment Management in Full Life Circle Through the Industry Chain
Climate Change

We respond to the Paris Agreement adopted by the 2015 United Nations Climate Change Conference, embrace the goal of limiting global warming to less than 2 degrees Celsius by the end of this century. To this end, we actively respond to climate change, devoted ourselves to low-carbon development, and shared the practice of greenhouse gas control with industry peers and all sectors of society.

Carbon Emission Management

We paid close attention to greenhouse gas emissions and included combating climate change in our development plan. In 2016, following the instructions of the National Greenhouse Gas Emissions Accounting and Reporting Technical Guidelines, we improved the running of the information system for greenhouse gas accounting and reporting, coordinated the accounting of greenhouse gas emissions, and completed the greenhouse gas emission inventory for each business area, covering direct and indirect emissions such as fuel combustion emission, production process emission, fugitive emission and greenhouse gas recovery and recycling.

CNPC Low Carbon Development Progress Chart

- **Safeguard measures**
  - 2018 Corporate Social Responsibility Report
  - 2018 Corporate Social Responsibility Report

- **Progress in 2018**
  - Enhance carbon trading implementation and carbon asset management
  - Subsidiaries on the list of the national carbon emissions trading market conducted greenhouse gas emission accounting and reporting according to the requirements, and carried out management and control of the carbon emission quota
  - Encourage voluntary greenhouse gas emission reduction projects

- **Conduct greenhouse gas emission accounting**
  - Improved the information system for greenhouse gas accounting and reporting and prepared the greenhouse gas emission list of all units.
  - Conducted accounting and reporting of greenhouse gas emissions from overseas operations.
  - Carried out benchmark studies on carbon emission intensity for oil and gas production.

- **Improve energy efficiency**
  - Oil and gas field enterprises optimized their systems, improved operational efficiency, and increased the application scale of integrated supporting measures on energy conservation.
  - Refractory enterprises strove to build themselves into a “digital factory and intelligent enterprise,” and promoted the construction of the Energy Management and Control System and Carbon Emission Management System.

- **Carried out emission reductions relying on science and technology to reduce greenhouse gas emissions in production processes**
  - Develop Carbon Capture, Utilization and Storage (CCUS) technology
  - Set up CCUS demonstration projects for carbon capture and storage in Junggar Basin, Ordos Basin and Sichuan Basin, etc., and developed relevant technologies such as carbon dioxide flooding and storage and the assessment of carbon sequestration potential.
  - Built China’s first full-industry chain CCUS base for CO2 separation, capture and flooding in Jilin Oilfield with an annual storage capacity of 100,000 tons.

- **Participated in various activities under the framework of the Oil and Gas Climate Initiative (OGCI)**
  - Participated in the development of OGCI methane emission control objectives and implementation program.
  - Participated in relevant cooperative research work.
  - Senior management of the Company attended OGCI 2018 corporate leadership summit and delivered a speech.

- **Continuously build carbon sink forests**
  - Encourage voluntary greenhouse gas emission reduction projects

- **Safeguard measures**
  - Infuse low-carbon development into corporate strategy
  - Improve funding mechanisms to ensure investment in major targets of the roadmap
  - Improve the phasing-out mechanism, and introduce a gradual phasing-out policy for oilfields with high energy consumption and high water cut, and for refining equipment with high carbon emission per unit product and low market demand
  - Promote the carbon cost assessment mechanism at proper time to guide investment towards businesses with low-carbon emission

- **By 2020**
  - Reduce CO2 emission per unit industrial value-added by 25% compared with 2015, and strive to stop greenhouse gas emissions from increasing in refining and chemical business.

- **By 2030**
  - Carried out emission reductions relying on science and technology to reduce greenhouse gas emissions in production processes
  - Improve the information system for greenhouse gas accounting and reporting and prepared the greenhouse gas emission list of all units.

- **By 2050**
  - CARBN 4 quadruple measures for controlling greenhouse gas emissions and mechanisms.
  - CNPC Greenhouse Gas Emission System and Mechanism

Curbing Methane Emissions

CNPC carried out methane emission accounting across the entire industrial chain of oil and gas production and methane emission monitoring for key areas of production. The Company’s methane emission sources mainly include the flare systems, production drainage, dehydrating separation, wastewater and sludge-diage, pneumatic controllers, compressors and storage tanks.

The Company strengthened efforts to reduce leakage emissions, venting emission and flare emission, and enhanced methane recovery in major oil and gas fields. In Tarim Oilfield, 48 recycling sites were built with a recycling capacity of 4.2 million cubic meters per day and a recovery rate of 70%.

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Responsible Operation

As the only Chinese member of the Oil and Gas Climate Initiative (OGCI), CNPC is deeply involved in international cooperation to address climate change, combines with other OGCI members and all sectors of society on positions and initiative in response to climate change and carries out relevant cooperation. We actively participate in the endeavors under the OGCI framework.

OGCI’s methane target: By 2025, reduce the collective average methane intensity of the aggregated upstream gas and oil operations to below 0.25%, with the ambition to achieve 0.2%.

Low Carbon Research and Standard Setting

Active participation in relevant low carbon standard setting and research under the OGCI framework:
- Low carbon strategy: Participated in the formulation of OGCI-2040 Low Emissions Roadmap and OGCI methane emissions control objectives, as well as in the completion of the Study on the Potential of Agriculture, Forestry and Other Land Uses in Reducing Carbon Emission.
- Clean utilization of natural gas: Cooperated in the verification of methane emission in the full industrial chains of oil and gas production, and monitoring of methane emission in key production processes.
- CCUS technologies: Participated in CCUS commercialization policy research and developed special CCUS communication programs for the Middle East and China.
- Standard setting: Led the development of Carbon dioxide capture, transportation and geological storage—Quantification and verification (ISO/TR 27913), laying the technical foundation for the benefit evaluation of emission reduction and carbon market access of carbon dioxide sequestration projects.

Establishment of OGCI Climate Investments China

CNPC jointly established Climate Investments China with OGCI Climate Investment Fund (CI) to invest in China’s domestic low carbon market, promote research, demonstration and popularization of low carbon technologies and business models in China, and explore opportunities for low carbon transition in the petroleum industry.

Exchange and Communication With Peers

Senior representatives of the Company attended the OGCI 2018 annual meeting, and exchanged professional experience with peers on issues such as the role of natural gas in energy transition in developing countries, improvement of energy efficiency and strengthening of international energy cooperation.

Development of Low-carbon Energy

As an advocate and participant of the low-carbon economy, we actively develop natural gas, coal-bed methane, shale gas, biomass energy and other low-carbon energies; attach great importance to producing and supplying clean products, and work hard to achieve clean production and consumption processes (see Chapter 1: Sustainable Energy Supply for details).

Development and Application of Low-carbon Technologies

With science and technology playing a significant role in controlling greenhouse gas emissions and addressing climate change, we carried out researches on carbon emission reduction technologies such as CO2 flooding and storage, assessment of carbon sequestration potential in salt water layers and oil reservoirs, and CO2 capture for flare gas from the Company’s power plants. Our first CCUS base for the whole process of CO2 separation, capture and flooding was built in Jilin Oilfield. By the end of 2018, its accumulated CO2 storage reached 1.985 million tons. The Supporting Technology of CO2 Flooding and Storage and Its Application won the first prize for technological progress from the National Energy Administration.

Carbon Emission Reduction During Production

While supplying society with clean oil products, we also pay high attention to optimizing our own energy consumption structure. We also cared about carbon emissions and carbon footprint during production and operation. In Huawei Oilfield, Tarim Oilfield and other areas, we used renewable energies such as geothermal energy and solar energy to reduce carbon emissions during production.

Huabei Oilfield has formulated its Geothermal Utilization Development Plan of Huabei Oilfield Company (2018-2025) to facilitate the building of the green and intelligent new city of Xiong’an New Area. Relying on the advantages of mid and low-temperature geothermal resources of the Huabei oilfield, it has built a “geothermal +” economic growth pole to promote the upgrade of local clean energy consumption. In 2018, Huabei Oilfield started to construct ten geothermal heating demonstration zones in Bohai Vocational College, Huabei Production Area, Hujuan and Lusun County, aiming to cover 1.84 million square meters of heating area, which could save 50,000 tons of standard coal.

Market-based Mechanism for Carbon Saving

We actively participated in carbon trading activities to achieve carbon emissions reduction through market-based mechanisms. We are the co-founder of the Tianjin Climate Exchange (TCE), the first comprehensive emissions trading institution in China. The energy saving and emissions reduction projects developed by TCE could save more than 200,000 tons of CO2 annually, equivalent to over 500,000 tons of standard carbon dioxide emission reduction.

Forestry Carbon Sequestration

We actively support carbon sink forest construction and forestation activities in China. We established the China Green Carbon Foundation together with the State Forestry Administration, continuously building carbon sink forests. Meanwhile, we set up the Forestaion Committee to ensure continuous forestation in our production areas and living quarters. As of late 2018, green coverage in CNPC’s production areas reached 293 million square meters, representing a vegetation coverage rate of 44.99%. A total of 995,900 employees voluntarily planted 203.2 million trees in 2018.
Products and Service

Following the quality principle of "Integrity and Excellence", we strengthen the quality management system and improve process quality control to create brand products. In addition, we continue to promote high-quality development for the Company by consistently improving product, project and service quality.

Quality Control

In 2018, CNPC continued to enhance quality management, focusing on system standards improvement, quality supervision and inspection, and quality culture building.

<table>
<thead>
<tr>
<th>Key work</th>
<th>Content</th>
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</thead>
<tbody>
<tr>
<td>System standards improvement</td>
<td>Developed and implemented action plan for quality improvement, with clear goals, tasks and implementation approaches.</td>
</tr>
<tr>
<td>Quality supervision and inspection</td>
<td>Conducted full coverage spot checks on the quality of materials purchased by key subsidiaries.</td>
</tr>
<tr>
<td></td>
<td>Conducted QHSE checks on Panjin Compressor Station, Changsha Branch of the Third West-East Gas Pipeline, and Togtoh Compressor Station</td>
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<tr>
<td></td>
<td>Spot-checked 1,395 batches of procured products throughout the year</td>
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<tr>
<td></td>
<td>Conducted quality supervision and spot checks on National VI Standard oil products, and received spot-checks from national and local authorities on more than 10,000 batches of products. No unqualified products were found.</td>
</tr>
<tr>
<td>Quality culture building</td>
<td>Held interactive customer activities such as &quot;Customer Experience Day&quot; and &quot;Open Lab Day&quot;</td>
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<tr>
<td></td>
<td>Organized QC group activities engaging 150,000 people</td>
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Major measures to ensure quality of oil products in 2018

- We studied and formulated a special spot-check program for the upgrade of oil product quality to National VI Standard, in order to enhance oil product quality management and ensure the quality of oil products offered to consumers;
- Refining and chemical companies accelerated construction of oil product upgrading equipment and strengthened production process quality control of oil products;
- Marketing companies applied strict quality standards on export of oil products, and conducted oil product quality supervision and spot checks.

Product Management

We provide consumers with products according to legal provisions and industrial standards in a responsible way. While providing products, we put emphasis on the influence on consumers and guarantee product safety. Meanwhile, we actively communicate with consumers, publish product safety risk evaluation results and make great efforts to protect consumers’ legal interests.

Quality Products and Services

Providing Quality Products

By strengthening technological innovation and promoting product quality upgrading, we provided applicable solutions for our industry as well as safe, reliable, high-quality and environmentally-friendly products for our customers. All equipment for gasoline and diesel production in our refining and chemical companies were able to meet National VI Standard.

New chemical products

- FHMCRP100N and HMCRP100N, special-purpose resins for PE tubing produced by Fushun Petrochemical and Sichuan Petrochemical respectively, have passed grading certifications by the National Test Center of Polymer and Chemical Building Materials;
- L5050, special-purpose resin for PE-RT tubing produced by Lanzhou Petrochemical, has passed grading certifications by the National Test Center of Polymer and Chemical Building Materials;
- Fushun Petrochemical has achieved noticeable results in developing the dephosphorization technology for producing ESBR1502E;
- Dushanzi Petrochemical successfully produced a new NdBR product in pilot-test equipment.
2018 Corporate Social Responsibility Report

Responsible Operation

Promoting Service Level

We constantly improve consumer experience and provide consumers with satisfactory and efficient services. In 2018, we launched construction of intelligent gas stations to upgrade part of existing stations to multi-energy stations that provide gasoline, natural gas and electricity.

Supply Chain Management

We actively promote the sustainable development of the industrial chain. Accordingly, we work in a respectful, communicative, honest and cooperative manner to encourage our partners to jointly fulfill our social responsibilities, and provide the society with high-quality products and services.

Following the concept of "law-abidance, openness, competition, merit-based selection, and win-win results", we have built a bidding management system featuring unified management, graded responsibilities and joint supervision, and a management model characterized by separate management and operation, level and category based management, and professional implementation. We made great efforts to promote the electronic bidding platform to implement the principle of "fairness, justice and openness" and actively promoted transparent bidding and green procurement, in order to realize corporate governance by law and compliance management.

Customer satisfaction rate for follow-up calls of CNPC service hotline 95504 reached 96.1%

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Key Measures for Supplier Management in 2018

we made on-site visits to suppliers, evaluating their ability to develop in a safe, green, environmentally-friendly, and sustainable manner.

we selected new material suppliers by means of open bidding and qualification review to ensure standard operation featuring full disclosure, joint participation, and democratic decision-making.

we used the internet for real-time communication with suppliers.

we promoted cooperation with strategic suppliers and established a mechanism for communication on a regular basis.

180 billion RMB

procurement expenses in 2018

30,000 suppliers in 2018

Supplier Management Principles and Philosophy

Management principles

Open and voluntary, small quantity but high quality, dynamic management, resource sharing, global sourcing, mutual benefits and win-win.

Management Philosophy

Unified management system, unified operation flow, unified management standards, and unified supplier database.

Case Study: Travel with CNPC on Sichuan-Tibet Highway of G318

From April 5th to 14th, 2018, the Company launched the “Travel with CNPC” campaign again, inviting 15 drivers to have a self-drive tour on the Sichuan-Tibet section of the National Highway 318. The participants experienced the hard journey to transport oil products to Tibet, witnessed the responsibilities shouldered by CNPC as an SOE, and passed on the positive energy through the journey.

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Employees’ Rights and Interests

Strictly complying with international conventions on labor and human rights, we respect and protect employees’ legal rights and interests, and advocate the employment policy based on equality and non-discrimination. We continue to perfect the compensation and benefits system, and improve democratic mechanisms, so as to create a fair and harmonious working environment for employees.

Employment Policies

CNPC always puts people first and values and safeguards the lawful rights and interests of the employees. We strictly comply with the Labor Law of the People’s Republic of China, the Labor Contract Law of the People’s Republic of China and the Trade Union Law of the People’s Republic of China, relevant international conventions approved by the Chinese Government, and relevant laws and regulations of the host countries. We promote the employment policies of equality and non-discrimination, and provide equal opportunities and fair treatment to all employees regardless of nationality, race, gender, religion or cultural background, resolutely prohibit child labor and forced labor; and always aim to promote the employment of women and ethnic minorities. Specifically, we strictly implement the regulations on pregnancy, maternity and parental leave for female employees, and guarantee that the female employees enjoy equal compensation and benefits and career development opportunities. By the end of 2018, the Company had got 52 female senior executives and 1,811 female middle-level managers.

Compensation and Incentives

We intensified our efforts to reform the remuneration system, improve policies on enterprise annuity and supplementary medical insurance, and further improve the salary distribution system by linking it closely with performance appraisal results. The remuneration system, highlighting on-the-job contribution of employees, was put in place. Besides, we pay special attention, in terms of income, to employees engaged in technological innovation and those working at grass-roots level and in key positions or in harsh environments in an effort to fulfill the value of each employee.

Major Progress in Performance Appraisal in 2018

- improved Measures for Performance Appraisal of Business Leaders and its detailed implementing rules
- entered into interim performance contracts for 2018 and 2018-2020, ensuring full coverage of business leaders in performance appraisal

We

- In 2018, the Company released job openings in 116 subsidiaries for college and university graduates, and recruited 1,775 candidates, over 33.75% of whom hold a master’s or doctorate degree.
Employee Development

Case Study: Huabei Petrochemical Improved its Distribution Incentive Mechanism

Since 2018, Huabei Petrochemical Company has accelerated the reform of the remuneration system. Through a number of measures, such as favoring front-line employees in income distribution, providing subsidies for skilled personnel, reforming internal distributions, and improving the mechanism to link payroll with performance, it has developed a distribution incentive mechanism that provides incentives by merit and contributions, reasonably widening gaps in income distribution, and fully motivates the enthusiasm of employees.

Democratic Participation

We ensure that our employees play an important role through democratic management, participation and supervision. We have established the trade unions, put in place a democratic management system through workers’ congress and adapted a transparent approach to factory affairs. Specifically, we have further standardized the content, procedures and model of our open system for factory affairs by clarifying rights and obligations, organizational system, and working processes for the workers’ congress. By doing so, the Company has improved our enterprise democratic management. We have established multiple channels to communicate with the employees, continued to implement democratic procedures, and solicited the employees’ opinions by holding workers’ congress, democratic discussion meetings, and employee representative symposiums. Besides, we guarantee the employees’ rights to know, participate, manage, vote and supervise, and encourage them to offer advice and suggestions for the enterprise development.

What is human resources sharing

Human resources sharing services are centralized, professional and standard staff services provided in a service center for payroll accounting, social insurance and executive practices relating to human resources management. The first batch of pilot projects of CNPC human resources sharing services were officially launched at the end of November 2017, and the Xian Center for Sharing Services was officially delisted and put into operation in September 2018. By the end of 2018, our human resources sharing services had covered 84,000 employees.

Career Development Platform

We believe that the Company’s development is underpinned by our employees’ growth. We endeavor to inspire employees’ creativity and help them fulfill their personal value through staff training, career promotion and an improved incentive mechanism.

Education and Training

We continuously improve the construction of our training centers and networks, and provide flexible training programs for employees such as knowledge training, professional training, combination of on-the-job training, off-the-job training and space-time training to deliver diversified and differentiated vocational training and strive to create a learning culture for the growth of both the Company and individuals.

On the basis of promoting all-staff training, we carried out the “Four Training Projects for Talented People” for the managerial personnel, technical experts, skilled operators and internationalized talents. In 2018, a total of 20,000 employees received key training sessions organized by the Headquarters.

Major Training Projects under “Four Training Projects for Talents” in 2018

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
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</table>
| **Managerial Personnel** | • Seminars for management personnel of subsidiary companies  
• Party school training classes  
• Training classes for young and middle-aged management personnel  
• Visiting scholar program at Stanford University  
• Training sessions for senior executives in GE in the USA, and in Siemens in Germany  
• Training sessions for personnel in charge of party building and the secretary of discipline inspection commission  
• Training sessions for division-level officials at key positions |
| **Technical Experts** | • Technical experts received elective-course training at Tsinghua University  
• Training sessions for senior technicians  
• Training sessions on safety management for executives of enterprises dealing with hazardous chemicals  
• Training sessions of upstream business for oil and gas plant chief executives  
• Expert training sessions in Russia and Germany  
• Training sessions at Tsinghua University, Beijing Institute of Technology and other universities |
| **Internationalized Talented People** | • Training sessions for core youth employees in GE  
• Overseas training sessions of engineering technology projects, finance and IT for core management personnel  
• “Thousand People Training Project” targeting international talents |
| **Skilled Operators** | |
Career Development

We attach great importance to the career planning of employees and support the career development of employees to realize their value. In 2018, we deepened the reform of technical rank-based career development for technical staff at R&D institutions, and continued to improve the incentive mechanism to fully unleash the potential of employees in an effort to provide technical personnel with a clear, transparent and stable career path. We implement Oil Scientists Training Program and Outstanding Young Technician Training Project, so as to open channels for the growth of innovative talents.

By the end of 2018, we had set up 93 Skilled Expert Studios, including 18 National Skilled Expert Studios with 303 senior technical experts and 388 skilled experts. The Company has 21 academicians at the Chinese Academy of Sciences and the Chinese Academy of Engineering, and 569 on-job experts are entitled to the Government Special Allowance.

Rewards and Incentives

We carry out multiple campaigns to select model workers, outstanding workers, technical experts and academic leaders, encourage employees to participate in international and domestic competitions, and award winners spiritually and materially.

Case Study  The Company Hosted Skill Exchanges among Skilled Expert Studios

The Company held Skill Exchanges among Skilled Expert Studios 2018 & series of activities to promote the application of front-line innovation achievements. We organized skilled expert studios in subsidiaries such as Southwest Oil and Gas Field, Bohai Drilling Engineering Company Limited, Daqing Oilfield, and Liaoyang Petrochemical to carry out skill exchanges and exchanges in front-line innovation achievements, covering 8 major types of production such as oil production, gas production, and refining and chemical engineering.

In the future, the Company will work to set up platforms for skill exchanges, application and promotion of front-line innovation achievements, and skilled leading talents, and develop a long-term mechanism for exchanges among skilled expert studios and application and promotion of front-line innovation achievements.

Career development system for skilled personnel

- Create a nine-level promotion system for key skilled personnel at key positions
- Develop bonus criteria for selecting high-skilled talents
- Revised administrative measures for vocational skills costs
- Conducted selection, evaluation, use and assessment of high-skilled personnel
- Launched the campaign of training for skilled personnel in subsidiaries in Western China
- Set up platforms to exchange skill development, enhance the capabilities of operators, and support front-line production technology

Innovation Talented People

- Foster top-level talents to play the leading role as skilled experts
- Cultivate high-end leading talents and develop talent pool for core talents
- High-end skills seminar and vocational training
- Joint training of technical and technical personnel
- Host skill exchange activities for skilled experts and organize cross-enterprise, cross-region and cross-profession skill exchanges for key training subjects
- Oil Scientists Training Program
- Outstanding Young Technicians Training Project
- Academic and technical consultation among academicians and senior technical experts

Employees and Collectives Granted National Awards in 2018

<table>
<thead>
<tr>
<th>Awards</th>
<th>Award-winning employees and collectives (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National May 1st Labor Medal</td>
<td>14</td>
</tr>
<tr>
<td>National Pioneer Worker</td>
<td>18</td>
</tr>
</tbody>
</table>
Local Hiring and Diversity

We embrace a respectful, open and inclusive culture, and are committed to the localization, professionalization and marketization of overseas employees. We constantly improve the employee cultivation mechanism and endeavor to promote employee localization and talent internalization. By the end of 2018, the localization rate of our overseas employees had reached 84.4%.

Local Employment

We continuously improve the localization of our workforce, attach great importance to attracting and retaining excellent local talents, enhance the local employee training, and increase the proportion of local employees in important technical and management posts. Our employee localization policy not only enables the local employees to play a more important role in the Company’s development, but also helps to build a talent pool for the sustainable development of local petroleum industry.

Respect for Cultural Diversity

We respect the employees’ individuality, ability and varied experiences, and cherish their diversified talent. We make all efforts to eliminate the employment and occupational discrimination, create a relaxing and tolerant working environment, and promote the mutual respect and understanding among employees of different nations, areas and cultural backgrounds.

Key Achievements in Occupational Health in 2018

- Improved occupational health management
  - Revise the Regulations on the Management of Occupational Health Records
  - Completed the CNPC Standard for the Quantitative Review of Occupational Health for four specialties: oil and gas fields, refining and chemicals, pipelines and marketing
  - Improved occupational health protection facilities in workplaces and their management
  - Carried out supervision and research on occupational health work
  - Provided special training for occupational health management personnel

- Enhanced occupational health awareness
  - Launched the campaign of Occupational Health Awareness Week

- Identified substandard facilities for occupational disease prevention and protection at workplace
  - Intensified our efforts to rectify facilities for occupational disease prevention and protection in some laboratories and dusty environment to ensure their compliance

Case Study: CNPC International (America) Inc Took Part in the Dragon Boat Race

In May 2018, CNPC International (America) Inc took part in the Dragon Boat Race in Houston organized by the Texas Dragon Boat Association and scored outstanding achievements.

CNPC International (America) Inc took part in the past races with a strong sense of team work, not only promoting the cross-cultural exchange and integration of the internal teams, but also further shaping a good social image of CNPC. Sylvester Turner, Mayor of Houston, and the Texas Dragon Boat Association extended their gratitude to CNPC International (America) Inc for its active support for the event.

Physical and Psychological Health

We cherish employees’ life and attach great importance to their health. We strive to provide a favorable working environment for the physical and psychological health of our employees, and have established a mental health platform and introduced a series of policies and measures to guarantee their physical and psychological health.

Occupational Health

We attach great importance to staff occupational health protection. In 2018, we revised the occupational health file management system, established standards for the quantitative review and inspection of occupational health in oil and gas fields and other workplaces, and strengthened the basic management of occupational health. We trained occupational health management personnel and launched the Occupational Health Awareness Week, and conscientiously implemented ‘occupational health protection for a healthy China’, a national concept for occupational health protection.

Rate of local employment in major overseas business cooperation areas

<table>
<thead>
<tr>
<th>Region</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Asia-Russia</td>
<td>62</td>
</tr>
<tr>
<td>Middle East</td>
<td>57</td>
</tr>
<tr>
<td>Africa</td>
<td>96</td>
</tr>
<tr>
<td>America</td>
<td>86</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>82</td>
</tr>
</tbody>
</table>
Employee Development

Dust Hazard Treatment

- Workplaces below emission standards
- Shut down facilities
- Apply remote monitoring technology for unattended posts vulnerable to hazards
- Workplaces seriously below emission standards
- Fundamentally improve the working environment

Mental Health

We took measures to continuously improve the employee vacation system. We implemented the Employee Assistance Program (EAP), set up hotlines and websites for psychological consultation, and carried out various forms of training on mental health improvement, in order to build a positive and healthy mindset for employees. In 2018, the Company continued to implement mental health service projects overseas to improve employees’ mental health, assigned psychologists to Kazakhstan, Brazil, Peru, Venezuela and some other countries to provide mental health consultation services to show our care for their mental health.

Caring for Employees

We advocate a good work-life balance and make great efforts to create a healthy and comfortable living environment for our employees. We continuously push forward the market-oriented reforms on service of staff communities and improve the poverty alleviation and aid mechanism, in order to improve the employees’ quality of life.

Employee Community Service

Our staff communities are located in more than a dozen provinces (municipalities and autonomous regions), with 4 million residents in 1.3 million households. We actively integrate resources from all sources, build a four-in-one service system covering government public services, social professional services, volunteer services and comprehensive services for mining areas, and introduce into the mining areas all types of social welfare policies, such as education, medical care, employment, transportation, communication, culture, sports, housing, services for the disabled, social assistance and social security.

Improving public facilities: Supported by relevant national policies, we have transferred water/power/heating supply and property management to professional private companies and improved community infrastructure and public facilities, in an effort to build modern communities that are much safer and more functionally complete.

Building beautiful mining areas: We keep our efforts in tree planting in the staff communities, promote cooperation and sharing of green areas, and build a green ecosystem while carrying out our business. As of late 2018, the total green zones at staff communities have reached 293 million square meters, with green coverage of 44.59% at the living areas.

Creating a harmonious culture in mining areas: We organize and carry out a variety of cultural and sports activities, such as “Neighborhood Banquets”, “Neighborhood Festivals”, and “Art Festivals.” We select moral models, civilized families and other role models, advocate civilized etiquettes and styles, and build civilized and harmonious mining areas.

Employees Assistance

The Company continuously carried out employee help and support activities, focusing on the settlement of life difficulties of the employees, including retirees, employees’ family members and family dependents of the deceased. In 2018, we took targeted measures to help the employees in need, especially those in extreme poverty, through a variety of effective campaigns such as “tuition fee sponsorship for the new semester” and “entrepreneurial support.”

Case Study

Liaohe Oilfield Implemented the Program of “Entrepreneurial Support for Family Members of Needy Employees”

Through the program of “Entrepreneurial Support for Family Members of Needy Employees,” Liaohe Oilfield took targeted measures to lift destitute employees out of poverty.

Through this program, the company introduced entrepreneurial policies to business starters, provided entrepreneurial training, evaluated proposed projects in terms of their initiation, market estimation and entrepreneurial capability, and, depending on the evaluation results and to facilitate their entrepreneurial efforts, provided entrepreneurial funds to families in need.

After nearly a year of implementation, some families have put their projects on the right track and in good operation, thus improving their living standards.
Public Welfare

We always adhere to combining our business growth with sustainable development of the host countries in which we operate. We aim to become an outstanding business enterprise in the host country by attaching importance to people’s livelihood and social progress, sharing development opportunities and resources with the local community, actively participating in the development of local community and promoting harmonious economic and social development.

Targeted Poverty Alleviation

Poverty alleviation is an important topic in sustainable development around the world and also one of our key concerns. We have responded positively to the initiatives of the United Nation’s 2030 Agenda for Sustainable Development and to the Chinese government’s policies on poverty alleviation targeted at the improvement of people’s livelihood, industrial development, intellectual development and medical care. By combining our business strengths with local resources and market advantages, in areas receiving assistance, we have taken targeted measures to help them develop the local economy on their own.

In 2018, we have invested RMB 97.49 million and continued to carry out fixed-point poverty alleviation and aid programs, and implemented 44 projects, including infrastructure reconstruction, education and training, healthcare, and industrial collaboration in 13 counties and districts in seven provinces (municipalities and autonomous regions) of China - Xinjiang, Tibet, Qinghai, Chongqing, Henan, Jiangxi and Guizhou, directly benefiting more than 80,000 people whose files have been identified and achieved as the destitute population.

At the 14th China International Corporate Social Responsibility Forum hosted by China News Service and News China, CNPC was honored as 2018 Responsible Corporate of the Year.

The China Charity Award is the highest government charity award in China. Issued by the Ministry of Civil Affairs, it aims to recognize individuals, organizations, charitable projects and charitable trusts etc. that have outstanding contributions and influence in China’s charitable activities, especially poverty alleviation activities.
In 2016, the Mothers Return to Hometown Employment Promotion project was launched and a total of 6 labor-intensive cooperatives that promote women’s employment were supported in four areas receiving assistance. Training 1,114 rural teachers and medical workers for designated poverty alleviation counties.

Projects such as Safflower Industrial Park, dairy product processing, livestock breeding cooperatives etc. have been put in operation in 4 counties of Xinjiang.

We introduced 13 companies into the areas receiving assistance with a total investment of RMB 660 million.

In light of the strong foundation of chemical industry of Fanxian County in Henan Province, our subsidiaries cooperated with leading chemical enterprises in the county to carry out materials processing which has driven sales revenue by more than RMB 40 million, created job opportunities for more than 20 impoverished people.

We purchased and sold agricultural products worth of RMB 6.64 million in 10 fixed-point poverty alleviation counties.

We completed cadre re-election in the fixed-point poverty alleviation regions, and newly appointed 11 cadres and first secretaries who reside in the local villages.

We introduced 13 companies into the areas receiving assistance with a total investment of RMB 660 million.

By maximizing its advantage of the service station network, nearly RMB 16 million of specialty liquor sales have been sold at its service station stores, bringing about more than RMB 5 million for local taxes.

We purchased and sold agricultural products worth of RMB 6.64 million in 10 fixed-point poverty alleviation counties.

40 million RMB

We treated more than 1,400 impoverished people and created 604 jobs.

In 2016, the company set up a Safflower Industrial Park Poverty Alleviation Project, and continuously come up with supporting projects such as familial irrigation and anti-soil erosion canals that would allow the industrial park to integrate functions covering planting, processing and marketing. The park was officially put into operation in September 2017. In 2018, CNPC continued to improve the project by equipping itself with seed drying and drip irrigation in order to promote the rapid development of the county’s safflower seed oil industry. In 2018, 2,000 tons of safflower oil was produced, which has benefited 800 impoverished households. The average income per household increased by more than RMB 2,000. The project has improved the production and living conditions of the poor population and contributed to poverty alleviation in Opqiqi Xibe Autonomous County.

Case Study: Safflower Industrial Park Project Jigasitai Township Qapqal Xibe Autonomous County in Il Kazakh Autonomous Prefecture

In 2018, the company introduced 13 companies into the areas receiving assistance with a total investment of RMB 660 million.

We introduced 13 companies into the areas receiving assistance with a total investment of RMB 660 million.

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Some Targeted Poverty Alleviation Projects and Achievements in 2018

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Location</th>
<th>Project Details</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Plants</td>
<td>Barkun County, Qinghe County, Xinjiang</td>
<td>CNPC built dairy and meat processing plants to realize the localization of food processing in the two counties and drive local industrial structure upgrade.</td>
<td>We’ve increased income for 240 impoverished households and created employment opportunities for more than 20 people.</td>
</tr>
<tr>
<td>Building Cooperatives</td>
<td>N魗eke and Tony County, Xinjiang</td>
<td>We’ve built cooperative breeding, purchased 100 high-quality mares and provided services such as cattle and sheep framing care.</td>
<td>645 households in need with more than 2,000 people have been directly benefited with continuous income increase, we’ve help realize the income increase of RMB 3,000 per capita. The project has created employment opportunities for more than 40 people.</td>
</tr>
<tr>
<td>Internet + Poverty Alleviation</td>
<td>Barkun County, Xinjiang</td>
<td>By building a Xiao Bing Melon Cooperative in Zhengu Village, Santanghu Town, CNPC lifted the local households out of poverty and increased their income.</td>
<td>The sales volume of the cooperatives exceeded 210,000 kilograms, and the per capita income of members increased by about RMB 1,000.</td>
</tr>
<tr>
<td>Building Economic Crops in Courtyard of Relocated Households</td>
<td>Jimusun and Qinghe Counties, Xinjiang</td>
<td>We’ve helped more than 250 relocated impoverished household members change the earthworks of their courtyard and planting fruit trees and vegetables, etc.</td>
<td>We’ve helped to cut down relocating cost by RMB 5,000 to 8,000 per household on average, and facilitated them in finding more permanent residence that will benefit their future development.</td>
</tr>
<tr>
<td>Rural Tourism Poverty Alleviation Project</td>
<td>Xiyah, Tarigan County, Guizhou Province and Fanxian County, Henan Province</td>
<td>To promote the development of local tourism, CNPC has built part of the homestay/hotels and villagers’ cooperatives.</td>
<td>The project has realized the common development of the local villagers to lift them out of poverty and achieve common prosperity.</td>
</tr>
<tr>
<td>Mother health express</td>
<td>Shangrao City, Jiangxi Province</td>
<td>Donated 12 cars of “Mother Health Express” to the poverty area, and launched female health knowledge education and disease screening activities.</td>
<td>Improve popularizing scale of medical and health knowledge of local women and children and improve medical service level for women in poverty areas.</td>
</tr>
</tbody>
</table>

Supporting Education

We believe that supporting education is important for us to fulfill the commitment to social progress and development. The Company strives to carry out various activities and gives young people equal opportunities for education to help them pursue their goals and boost their personal growth. Specifically, we set up scholarships, offer grant loans and subsidies to students from underprivileged families, improve teaching conditions for impoverished regions and support scientific and cultural activities as well as relevant competitive activities. In 2018, we granted CNPC Scholarships worth a total of RMB 3.99 million to 635 students.

In addition, we explore new models to support education, and call on the public to focus on and work together to achieve education equality in cooperation with China Foundation for Poverty Alleviation (CFPA), Beijing Normal University Group and Tencent Foundation, we sponsored the Xuhang Educational Program, the Teacher Training Program to help students from poor families complete their studies.
The Xuhang Program is a public welfare project launched by CNPC in 2015, aiming to help impoverished senior high school students from underdeveloped areas complete their studies and gain admission to college education by providing support for their learning and daily life. By the end of 2018, the program has been implemented in 10 county schools of 4 provinces, namely, Sichuan, Hubei, Guizhou and Jiangxi. In total, more than 3,000 senior high school students in extreme poverty received assistance from this program with subsidies and scholarships amounted to RMB 10 million.

### Case Study: "Xuhang" Charity Project, Cheering for Love

#### Online Activities

1. **Dream Collection**: Through the "PetroChina walk together on the charity road" public welfare platform established in 2016 to help ordinary people realize their public welfare dreams and pass on the concept of "everyone’s public welfare". By the end of 2018, a total of 12,481 philanthropic ideas were collected, of which 3,754 were funded. We believe that every initiative on public welfare will bring changes to the world.

2. **Dream Review**: "Walk together on the Charity Road", a Real Case, Achieving Every Tiny Public Welfare Dream. The "PetroChina walk together on the charity road" public welfare platform was established in 2016 to help ordinary people realize their public welfare dreams and pass on the concept of "everyone’s public welfare". By the end of 2018, a total of 12,481 philanthropic ideas were collected, of which 3,754 were funded. We believe that every initiative on public welfare will bring changes to the world.

3. **Voting**: The "PetroChina walk together on the charity road" public welfare platform was established in 2016 to help ordinary people realize their public welfare dreams and pass on the concept of "everyone’s public welfare". By the end of 2018, a total of 12,481 philanthropic ideas were collected, of which 3,754 were funded. We believe that every initiative on public welfare will bring changes to the world.

4. **Funding and Execution**: The "PetroChina walk together on the charity road" public welfare platform was established in 2016 to help ordinary people realize their public welfare dreams and pass on the concept of "everyone’s public welfare". By the end of 2018, a total of 12,481 philanthropic ideas were collected, of which 3,754 were funded. We believe that every initiative on public welfare will bring changes to the world.

#### Offline Activities

By September 2018, we organized 30 teams including 120 employees to participate in the Walkers of Kindness activity to raise funds for the Xuhang Program. The activity has drawn participation of more than 60,000 employees and received donation of RMB 940,000 to provide funding for Xuhang Program.

- **In September 2018**, we organized 30 teams including 120 employees to participate in the Walkers of Kindness activity to raise funds for the Xuhang Program. The activity has drawn participation of more than 60,000 employees and received donation of RMB 940,000 to provide funding for Xuhang Program.

The Alipay charity channel was opened and received enthusiastic support from the public. By 2018, 730,000 people had donated 2.08 million yuan to "Xuhang" and raise funds to help children in poverty-stricken areas.

Walkers of Kindness, a large scale outdoor hiking activity launched by China Foundation for Poverty Alleviation in 2014 to help raise funds, combines public welfare with outdoor hiking exercise. The activity requires 4 people to form a team, complete the hiking challenge of 50 kilometers within the prescribed time, and raise funds to help children in poverty-stricken areas.

#### Promoting Local Development

CNPC’s development is inseparable from the support and help of the governments, communities and the general public. While providing a continuous and stable energy supply for economic development, we insist on the principle of open cooperation for mutual benefit, expanding our joint-venture cooperation with state-owned capital, social capital and foreign capital in the upstream, midstream and downstream sectors. During the process of developing and running our projects, we help to nurture local suppliers and contractors, thereby creating jobs, driving the growth of related businesses, and giving back to local people.

CNPC has cooperated with the government of Xinjiang Autonomous Region in extensive areas such as exploration and development, refining and chemicals, oil and gas marketing. In the past five years, the Company has invested a total of RMB 224.7 billion in Xinjiang, paying RMB 220.3 billion worth of taxes and fees, including RMB 77.2 billion to the local government and increased local employment for more than 6,200 people.

Since its inception, the PetroChina Walk Together on the Charity Road platform has been established to help ordinary people realize their public welfare dreams and pass on the concept of "everyone's public welfare". By the end of 2018, a total of 12,481 philanthropic ideas were collected, of which 3,754 were funded. We believe that every initiative on public welfare will bring changes to the world.

In 2018, we collected 1,147 philanthropic ideas, of which 182 were funded. The funds are from 30 provinces (municipalities and autonomous regions), including Beijing and Sichuan, involving all kinds of groups from institutions of higher learning, primary and secondary schools, community residents, NGOs, industry associations, etc. The projects cover a variety of fields, including adolescent education, elderly services, environmental protection, community development. The special session on youth charity jointly launched by Shijia Primary School and the Experimental High School Attached to Beijing Normal University has ignited public welfare dream of every children and let the concept of "everyone's public welfare" enter into the primary and secondary school campus.
1. Tarim Oilfield is the third largest oil and gas field of CNPC and an important oil and gas producing area in China. As a primary source for the West East Gas Pipeline, it has become an important chapter in the history of promoting natural gas development in China. The development of Tarim Oilfield has witnessed how we planted CNPC spirit in the Taklimakan Desert. It also served as a testimony on how we rooted ourselves in Southern Xinjiang, how we collaborated with our compatriots in the T aklimakan Desert and jointly invested in the construction of a desert highway with the government. A large number of high-temperature resistant and sand plants such as red willow and populus euphratica were planted on both sides of the road, and drip irrigation was implemented, which shortened the traffic from Hetian area to Korla and Urumqi by 500-1,000 km. We built desert highways for wind and sand prevention.

2. Since the completion of the project, it has never set a stall office and thus, has benefited the local people. The backhaul water irrigation and growing technology developed by this project have been promoted and applied in Southern Xinjiang and other parts of the world. We drove industrial development and local employment. The Company combines its own growth with sustainable development of local resources and actively engages in the development of relevant local industries. In 2018, there were 733 contractors sourced locally by Tarim Oilfield Company, accounting for 47% of the total and contract value reaching RMB 17.99 billion, which has directly or indirectly driven the local employment of 25,000. We paid a total of RMB 7.83 billion taxes and fees for the year 2018. The Company carried out mixed ownership reform with local stakeholders, promoted and expanded on-site processing of oil and gas resources at a wider scale and deeper level, won maximum taxation and employment opportunities to the local communities in Xinjiang. The Tarim Oilfield Company’s hydrogenation to deep recovery project in cooperation with Bazhou with the largest processing capacity of its kind in China, which has further improved petrochemical industrial chain of Southern Xinjiang. The project became profitable in the first year of operation. In 2018, RMB 100 million taxes and fees were paid, and the local dividends stood at RMB 6.5 million.

3. We participate in public welfare undertakings and improve people’s livelihood. CNPC invested RMB 17.99 million in poverty alleviation funds for 7 counties including five prefectures such as Rutian, Akin, Hetian, which is used for infrastructure construction, industrial support, etc., directly benefiting more than 100,000 poverty-stricken populations. We’ve implemented targeted poverty alleviation and guided local farmers and herdsmen to develop animal husbandry and planting industries by fully leveraging on local conditions. We’ve organized in-kind donations, including 1,351 tons of fertilizer to 28 poverty-stricken villages of 7 counties including five prefectures such as Bazhou, Aksu, Hetian, which is used for infrastructure construction, industrial support, etc., directly benefiting more than 20,000 villagers, and donated more than 27,000 pieces of clothing, stationeries and books to three fixed-point poverty alleviation and aid villages.

4. The T arim Oilfield Company built a 565-kilometer-long highway that crossed the Taklimakan Desert and jointly invested in the construction of a desert highway shelterbelt project with the government. A large number of high-temperature resistant and sand plants such as red willow and populus euphratica were planted on both sides of the road, and drip irrigation was implemented, which shortened the traffic from Hetian area to Korla and Urumqi by 500-1,000 km. We built desert highways for wind and sand prevention.

5. We carried out clean production and environmental protection. Tarim Oilfield widely applies methane recovery, shallerly promotes the immediate disposal of drilling waste, speeds up withdrawal from environmentally sensitive areas so to protect the fragile ecosystem in the desert area. We always stick to the idea of ‘the green spirit’. We actively engaged in the development of relevant local industries. In 2018, there were 733 contractors sourced locally by Tarim Oilfield Company, accounting for 47% of the total and contract value reaching RMB 17.99 billion, which has directly or indirectly driven the local employment of 25,000. We paid a total of RMB 7.83 billion taxes and fees for the year 2018. The Company carried out mixed ownership reform with local stakeholders, promoted and expanded on-site processing of oil and gas resources at a wider scale and deeper level, won maximum taxation and employment opportunities to the local communities in Xinjiang. The Tarim Oilfield Company’s hydrogenation to deep recovery project in cooperation with Bazhou with the largest processing capacity of its kind in China, which has further improved petrochemical industrial chain of Southern Xinjiang. The project became profitable in the first year of operation. In 2018, RMB 100 million taxes and fees were paid, and the local dividends stood at RMB 6.5 million.

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Cultural Civilization

We encourage employees to participate in volunteer activities to help out people with difficulties so to advocate new trends in social civilization and contribute to the development of cultural civilization.

Volunteer Activities of Employees

We encourage our employees to serve communities and participate in other volunteer activities. In 2018, we had 1,900 youth volunteer teams with 163,000 members. They provided 390,000 hours of volunteer services, carrying out activities that directly benefit 910,000 people.

Volunteer Services for Migrant Workers on Their Way Home

The Spring Festival of 2019 marked the eighth consecutive year we provided free gasoline, food and insurance at the Company’s nearly 121 services stations at major national and inter-provincial highways in Fujian, Guangxi, Jiangxi, Hunan and Hubei provinces for migrant workers who need to travel home on motorcycles.

We Honor Taxi Heroes in the Capital

We honor courageous actions for a just cause and advocate social justice. We’ve been co-hosting the Beijing Cup of CNPC to honor the Taxi Heroes in the Capital campaign with the China Foundation For Justice and Courage and Auto Life News for the 12th consecutive year. We’ve elected and honored 20 taxi heroes in 2018.

Contributions to the Development of Overseas Communities

We respect the cultures and conventions of the host countries in which we operate, and we are committed to establishing long-term and stable cooperative relations with the host countries, along with striving to become an excellent corporate citizen in local communities. We incorporate our development into local socio-economic growth and create socio-economic value to jointly promote the development and prosperity of local communities. We incorporate our contributions to the development of overseas communities into our business strategies.

We也要 strive to make a positive impact on community development through carrying out responsible operations, which is not only translated into more employment opportunities, more tax contributions, and more business opportunities to local suppliers, but also reducing the environmental and social impact of production and operation activities on local communities as well as safeguarding the human rights of community residents.

Manage Our Impact in Local Communities

We strive to make a positive impact on community development through carrying out responsible operations, which is not only translated into more employment opportunities, more tax contributions, and more business opportunities to local suppliers, but also reducing the environmental and social impact of production and operation activities on local communities as well as safeguarding the human rights of community residents.

<table>
<thead>
<tr>
<th>Award</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>Entrepreneurs Association of Kazakhstan awarded the Order of Kurmet to Mr. Jiang Shi, General Manager of the PetroKazakhstan Shymkent Refinery Company</td>
<td>Recognized as a national medal of Kazakhstan, the Order of Kurmet is signed by the President to recognize the citizens of Kazakhstan who have made outstanding contributions to the country’s development in economy, society, science &amp; education, culture and sports.</td>
</tr>
<tr>
<td>The Astana Government of Kazakhstan awarded CNPC the Trust and Outstanding Contribution Award at the 6th International Investment Forum.</td>
<td>The Trust and Outstanding Contribution Award was established for the first time in recognition of the important contribution of foreign enterprises to local socio-economic development.</td>
</tr>
<tr>
<td>The 10th Anniversary of China-Kazakhstan Gas Pipeline Cooperation honored by the nation of Kazakhstan.</td>
<td>On the occasion of the 10th anniversary of the cooperation between China and Asian natural gas pipelines, we were given the honor to comment the contribution of Central-Asian Natural Gas Pipeline Company to local social and economic development, and writing a good example for deepening cooperation between the two countries.</td>
</tr>
<tr>
<td>Prime Minister Sagintayev of Kazakhstan awarded the 2018 Paluz Gold Prize to the CNPC’s Operation Company working on Kashagan Project and honored us with the title of Most Socially Responsible Corporate.</td>
<td>We conduct early consultation with community members when implementing social investment in order to meet actual needs and bring long-term benefits.</td>
</tr>
<tr>
<td>Entrepreneurship &amp; Business Opportunities</td>
<td>Before the construction of a project, we conduct assessments of the social and economic impact, such as the requirements of the indigenous people, human rights, cultural heritage, involuntary resettlement, etc.</td>
</tr>
<tr>
<td>Capacity Building</td>
<td>We may overlook local products and services and fail to share advanced technology with the local communities.</td>
</tr>
<tr>
<td>Land Acquisition, Relocation</td>
<td>By leveraging local social resources, we actively support the development of local enterprises, focus on local sourcing of products and services, and strengthen cooperation with local enterprises in terms of technical services to promote the development of relevant SKUs to support the talent training program of petroleum industry within the country.</td>
</tr>
<tr>
<td>Job Opportunities</td>
<td>We support the personnel training program for the oil industry of the host countries.</td>
</tr>
<tr>
<td>Technology Transfer</td>
<td>We set up the Ahadibe Oilfield Community Contribution Committee in Iraq, through which we provide public welfare assistance to community residents.</td>
</tr>
<tr>
<td>Residents adjacent to operation locations will be given a fair chance to express their concerns and understand how they will be affected.</td>
<td>We may overlook the concerns raised by communities surrounding operation sites.</td>
</tr>
<tr>
<td>We conduct early consultation with community members when implementing social investment in order to meet actual needs and bring long-term benefits.</td>
<td>We may overlook the concerns raised by communities surrounding operation sites.</td>
</tr>
<tr>
<td>We conduct early consultation with community members when implementing social investment in order to meet actual needs and bring long-term benefits.</td>
<td>We set up the Ahadibe Oilfield Community Contribution Committee in Iraq, through which we provide public welfare assistance to community residents.</td>
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<tr>
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</tr>
<tr>
<td>We conduct early consultation with community members when implementing social investment in order to meet actual needs and bring long-term benefits.</td>
<td>We promote social development plans of the host country and the needs of community residents.</td>
</tr>
</tbody>
</table>
Enhancing Communication with Local Communities

We have set up environmental protection and community relations coordination departments in many overseas areas to promote cooperation with local governments, NGOs and community representatives. By holding conferences, issuing reports and paying visits, we strengthen communication and coordination to achieve a win-win situation in cooperation.

Community Welfare

We take an active role to help improve the living conditions of local people, give donations to education, healthcare and other public welfare programs to achieve harmonious and mutual development.

In Niger
- We donated 20 wells and 15 classrooms in the surroundings of operation sites to improve local people's livelihood
- We donated 1 million XOF to the government for planting trees and environmental protection
- We built mosques in the operation sites to ensure the surrounding religious communities can perform their prayers
- We repaired the water tower of Enguti City to solve the water supply problem of local residents
- We donated 100,000 Sudanese pounds to the University of Khartoum, benefiting nearly 50,000 students
- We've been funding and purchasing books for the CNPC Library of the Confucius Institute at the University of Khartoum on environmental protection, ecological protection and open transparency
- We've adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

In Sudan
- We have been cooperating with the Confucius Institute at the University of Khartoum on social welfare project for the fourth consecutive year
- We've been funding and purchasing books for the CNPC Library of the Confucius Institute at the University of Khartoum benefiting nearly 50,000 students
- As a representative Chinese enterprises operating in Sudan, we donated 100,000 Sudanese pounds to the Deaf-Mute Association to improve the living conditions of the disabled
- We've been funding and purchasing books for the CNPC Library of the Confucius Institute at the University of Khartoum
- We've adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

In Venezuela
- We provided nearly one hundred hours of volunteer lectures and services to local Confucius Institutes
- We dispatched staff to support the medical services of China-Ark Peace Hospital Ship
- We have sponsored and held the New Year Banquet for Elderly People, inviting over 300 senior citizens
- We provided tables and chairs for community schools and shuttle services for the elderly students
- We’ve been funding and purchasing books for the CNPC Library of the Confucius Institute at the University of Khartoum
- We’ve adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

In Peru
- We provided tables and chairs for community schools and shuttle services for the elderly students
- We provided medical on-site consultation services for NEGROS citizens
- We hosted football championship for children in the local communities
- We provided medical on-site consultation services for NEGROS citizens
- We provided medical on-site consultation services for NEGROS citizens
- We’ve adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

In Singapore
- We have sponsored and held the New Year Banquet for Elderly People, inviting over 300 senior citizens from 8 rest homes to celebrate the New Year
- We’ve adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

In Kazakhstan
- Funding veterans World War II and their families who are living under poverty line and living alone
- New Year gifts to the elderly and children living along the operation pipeline in Turkistan
- We’ve adopted a model of Corporate Sponsored University Training Programs where trained employees return to previous employment, selected more than 60 outstanding high school graduates out of areas along our pipeline projects, and funded them a four-year undergraduate study at Xi'an Petroleum University in linguistics and oil and gas engineering majors

Local Environmental Protection

We strongly believe in the importance of striking a balance between business development and environmental protection. Therefore, we strictly comply with the laws and international standards on environmental protection in the countries in which we operate, protect local ecological environments, and strive to minimize the impact of our operations on the environment.

In 2018, the company won a National Bronze Award of the Ecological Protection Competition for Energy Enterprises in Kazakhstan with solid performance in ecological protection and open transparency on environmental information.

Case Study

The Ahadibu Project that Protected the Mother River of Iraq

The Tigris River is the mother river and the main source of drinking water in Iraq. An oilfield operations increase, the risk of corrosion across the Tigris pipeline has become bigger.

The Company’s Ahadibu project adheres to the principle of Environment Priority and sets up an anti-corrosion expert team to study the solution. In 2018, it completed the HDDP project through the Tigris River pipeline so that not only the pipelines are leak-proof but also dominate environmental hazards.

Case Study

Rumaila Power Station Effectively Uses Associated Gas

About 20 billion standard cubic meters of associated gas is burned directly into the air at the Iraqi Rumaila oilfield every year. In order to make rational use of energy, a consortium of CNPC and Iraqi Southern Oil Company (ROO) led by BP has started a project called Green Oilfield to build a power plant through multiple stages.

The power plant was completed in 2018, providing 1.3 billion KWH of electricity per year to meet the annual power demand of 1.08 million households. It can effectively use 520 million standard cubic meters of associated gas every year to cut sulfur dioxide emissions by about 380 tons.
Develop Local Economy

We place a strong emphasis on the reliance of local resources and procurement of local products and services and create opportunities for local contractors’ service companies to participate in our projects so to boost and promote the development of local SMEs and create more income and employment opportunities for the local communities. The Chad project actively introduced local contractors and suppliers. In 2018, it signed 11 contracts of larger values with local contractors and suppliers, the total value of which stood at USD 13.74 million.

Tax Payments According to Law

CNPC strictly complies with the laws and regulations in the countries where it operates, makes lawful and transparent tax payments to local governments, and makes due contributions to local economic development. In countries where the EIT (Extractive Industries Transparency Initiative) standard is implemented, such as Iraq, Mongolia and other countries, our local companies actively participate in the multi-stakeholder groups and publish information on our projects and tax payments, as required by EIT with the content beyond EIT minimum disclosure requirements. We support and respond to the Base Erosion and Profit Shifting (BEPS) initiative and the CNPC Tax Policy, and pledge to pay tax according to the law in areas where we operate and create value, in order to strive towards sustainable development and make due contributions to socio-economic development. The Company has contributed taxations amounted to RMB 71.18 billion for overseas businesses and operations.

CNPC Tax Policy

CNPC carries out tax planning in support of its business strategy and in compliance with international tax agreements and principles, as well as the tax laws of host countries. CNPC opposes aggressive tax planning to avoid potential risks and negative impacts on the company’s reputation and sustainability.

CNPC pays taxes in compliance with applicable tax laws of host countries, its business principles and code of conduct, and adheres to high professional standards to ensure the legitimacy and accuracy of tax payment in a timely manner.

CNPC advocates tax transparency, and ensures its tax information disclosures are accurate and fully completed in line with requirements of tax authorities.

CNPC manages tax risks through its effective internal control system and engages with tax authorities and external advisors in cases of a different interpretation of tax laws and regulations for professional judgment.

CNPC carries out intercompany transactions based on the “arm’s-length principle” and not for the purposes of eroding tax bases and shifting profits.

CNPC takes part in promoting a fair, consistent and stable taxation environment globally and strives to establish a fair, transparent and effective dialogue with tax authorities of host countries.

Protecting Indigenous Rights

Before the construction of a project, we conduct assessments of the social and economic impact, such as the requirements of the indigenous people, human rights, cultural heritage, involuntary resettlement. We try our best to protect all the rights and interests of the indigenous people. We uphold standard operation in land compensation, and make compensation plans by referring to the opinions of the local governments, our partners, and the local villagers. Specifically, compensation is paid before land use, and the compensation information is released timely to ensure operational transparency.

Outlook for 2019

The year 2019 will be marked by a slowdown in global economic recovery, a complicated operating environment, and uncertain international oil price trends. Facing the risks and challenges brought by the external environment, the Company will grasp new strategic opportunities and turn pressure into motivation to accelerate high-quality economic development, and take effective measures to address these risks and challenges through in-depth analysis and full preparations. Leveraging our advantages in integrated businesses and focusing on supply-side structural reform, we will be fully engaged in “Four key battles” in order to strengthen exploration and development, promote transformation and upgrading of the refining and petrochemical business, increase oil and gas sales and marketing efficiency, and improve service capabilities. Moreover, we will consistently enhance our ability to supply low-cost oil and gas resources, high-quality refined products and natural gas of diversified sources.

We will enhance the value of both the oil and gas business chains, promote the efficient allocation of domestic and foreign resources and the complementary linkage of the domestic market and the foreign market, and enhance our ability to optimize the allocation of global resources.

We will strengthen accountability investigation for accidents and incidents and strictly assess accountability; establish and improve the coordinated mechanism for contractor supervision and management with importance attached to key areas; and implement integrated (HSE) audit and supervision, so as to promote production safety and green development in a down-to-earth manner; and consolidate the foundation for safety and environmental protection in a steadily improving HSE environment.

We will safeguard the legitimate rights and interests of employees according to law, pay close attention to the occupational health of employees, improve the mechanism which synchronizes employees’ salary growth with the increase of labor productivity, and continue to implement key talent projects to improve the overall quality of employees. By doing so, the gains of reform and development will benefit all our employees in a fair way, who will in turn enjoy a stronger sense of fulfillment, happiness, and security.

We will earnestly fulfill our social responsibilities, actively devote ourselves to social welfare undertakings, carry out fixed-point poverty alleviation and aid programs, and contribute to China’s fight against poverty. More efforts will be made to strengthen communication and coordination with local governments, steadily implement relevant strategic partnership agreements and projects, and support and promote local economic and social development.

2019 marks the 70th anniversary of the founding of the People’s Republic of China. It is a crucial year for China to build a moderately prosperous society in an all-round way, and also a crucial year for CNPC to comprehensively accomplish the goals of the 13th Five-Year Plan. We will firmly support and respond to the Base Erosion and Profit Shifting (BEPS) initiative and the CNPC Tax Policy, and pledge to pay tax according to the law in areas where we operate and create value, in order to strive towards sustainable development and make due contributions to socio-economic development. The Company has contributed taxations amounted to RMB 71.18 billion for overseas businesses and operations.
### Performance Data

#### Performance indicators

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<td></td>
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<tr>
<td><strong>Total assets (RMB billion)</strong></td>
<td>5,089.4</td>
<td>4,024.1</td>
<td>4,063.8</td>
<td>4,018.7</td>
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<td>Owner’s equity attributable to parent company (RMB billion)</td>
<td>1,976.4</td>
<td>2,079.4</td>
<td>2,089.3</td>
<td>2,042.18</td>
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<tr>
<td>Operating revenues (RMB billion)</td>
<td>27,950</td>
<td>2,016.8</td>
<td>1,871.9</td>
<td>2,480.32</td>
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<tr>
<td>SO2 emissions (metric tons)</td>
<td>197,300</td>
<td>142,400</td>
<td>127,500</td>
<td>123,600</td>
</tr>
<tr>
<td>Energy saved (million tons of TCE)</td>
<td>1.26</td>
<td>1.16</td>
<td>0.95</td>
<td>0.88</td>
</tr>
<tr>
<td>Owner’s equity attributable to parent company (RMB billion)</td>
<td>1,976.4</td>
<td>2,079.4</td>
<td>2,089.3</td>
<td>2,042.18</td>
</tr>
<tr>
<td>Ethylene output (million tons)</td>
<td>4.98</td>
<td>5.03</td>
<td>5.59</td>
<td>5.76</td>
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<tr>
<td>Lubricant output (million tons)</td>
<td>1.18</td>
<td>1.21</td>
<td>1.16</td>
<td>1.64</td>
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<td>Marketing volume of refined products (domestically) (million tons)</td>
<td>117.02</td>
<td>116.25</td>
<td>113.53</td>
<td>114.163</td>
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<tr>
<td>Number of service stations (domestically)</td>
<td>20,888</td>
<td>20,714</td>
<td>20,695</td>
<td>21,399</td>
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<tr>
<td>Mileage of crude oil pipelines (km)</td>
<td>18,132</td>
<td>18,017</td>
<td>18,897</td>
<td>20,019</td>
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<tr>
<td>Mileage of refined products pipelines (km)</td>
<td>10,066</td>
<td>10,091</td>
<td>10,550</td>
<td>11,389</td>
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<tr>
<td>Mileage of natural gas pipelines (km)</td>
<td>50,895</td>
<td>50,328</td>
<td>51,734</td>
<td>53,608</td>
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<tr>
<td><strong>Safety</strong></td>
<td></td>
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<tr>
<td>Total number of accidents</td>
<td>215</td>
<td>237</td>
<td>270</td>
<td>283</td>
</tr>
<tr>
<td>Fatality rate (person/million working hours)</td>
<td>0.005</td>
<td>0.003</td>
<td>0.0023</td>
<td>0.004</td>
</tr>
<tr>
<td>Fatality rate (person/million working hours)-employee</td>
<td>0.0045</td>
<td>0.0029</td>
<td>0.0024</td>
<td>0.0023</td>
</tr>
<tr>
<td>Fatality rate (person/million working hours)-contractor</td>
<td>0.0018</td>
<td>0.0005</td>
<td>0.0019</td>
<td>0.0019</td>
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<tr>
<td>Fatality rate per thousand vehicles in traffic accidents (‰)</td>
<td>0.101</td>
<td>0.096</td>
<td>0.085</td>
<td>0.069</td>
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<tr>
<td><strong>Environment</strong></td>
<td></td>
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<tr>
<td>CO2 emissions (metric tons)</td>
<td>31,300</td>
<td>28,800</td>
<td>27,700</td>
<td>28,500</td>
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<tr>
<td>NOx emissions (metric tons)</td>
<td>12,500</td>
<td>11,740</td>
<td>11,500</td>
<td>11,000</td>
</tr>
<tr>
<td>NOx emissions (metric tons)</td>
<td>197,300</td>
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<td>1.26</td>
<td>1.16</td>
<td>1.16</td>
<td>0.98</td>
</tr>
<tr>
<td>Land saved (hectares)</td>
<td>1,232</td>
<td>1,200</td>
<td>1,135</td>
<td>1,180</td>
</tr>
<tr>
<td><strong>Number of employees in service</strong></td>
<td>1,628,100</td>
<td>1,638,900</td>
<td>1,577,400</td>
<td>1,522,600</td>
</tr>
<tr>
<td><strong>HSE management system</strong></td>
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<tr>
<td><strong>Carbon sequestration</strong></td>
<td></td>
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<tr>
<td>Oil &amp; (m) natural gas</td>
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<tr>
<td><strong>Transportation</strong></td>
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<tr>
<td><strong>Chemical oxygen demand (COD)</strong></td>
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<tr>
<td><strong>Ozone depletion</strong></td>
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<tr>
<td><strong>Major accident</strong></td>
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<tr>
<td><strong>Emergency accidents</strong></td>
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<td><strong>Occupational health surveillance</strong></td>
<td></td>
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*The data released in this report comply with the statistics of CO2, SO2, and NOx emissions in 2018 under the Review of the Ministry of Environmental Protection of PRC (MEP), which will be published once verified. The verified statistics for the year 2018 shall be published in this report next year.*

### Glossary

**Proven reserves**

According to China National Standards, proven reserves are estimated quantities of hydrocarbon deposits possibly to be recovered from reservoirs proved by appraisal drilling during the period of reserve evaluation, with a reasonable certainty or a relative difference of no more than ±20%.

**Proved reserves**

According to the guidelines of the US Securities and Exchange Commission, proved reserves refer to, against current economic and operating circumstances, the quantities of oil, natural gas or liquid natural gas which can be reasonably identified and recovered from known oil & gas layer in the future according to geological and engineering documents. Their price and cost are based on the reality in evaluation. Price changes will only consider the changes of current price specified by contract agreement rather than escalations. Proved reserves include proved reserves developed and undeveloped.

**Reserve replacement rate**

The reserve replacement ratio refers to the value of the amount of oil and gas reserves added in a year divided by the amount of oil and gas produced during that same year.

**Recovery ratio**

The percentage of oil in gas in place that is recoverable from underground.

**Horizontal well**

A class of nontwistoe wells where the wellbore axis is near horizontal (within approximately 10 degrees of the horizontal), or escalating above and below 90 degrees deviation. A horizontal well may produce at rates several times greater than a vertical well, enhance recovery efficiency and prolong the production cycle, due to the increased wellbore surface area within the production interval. Meanwhile, the environmental costs or land use problems that may pertain in some situations, as such as the aggregate surface “footprint” of an oil or gas resource recovery, can be reduced by the use of horizontal wells.

**Liquefied natural gas (LNG)**

Liquefied natural gas produced by desalting, dewaxing, dehydrating and fractionating the natural gas produced from a gas field and then turning it into liquid under low temperatures and high pressure.

**New energy**

New energy refers to unconventional energy and renewable energies, mainly including CBM, shale gas, oil, wind, solar, fuel ethanol, biodiesel, geothermal energy, wind energy, solar energy, hydrogen energy, water-soluble gas and NGH.

**Low-carbon economy**

A low-carbon economy is an economic development model characterized by low energy consumption, low pollution and low emissions. Its essence is efficient energy consumption, development of clean energy and pursuit of green GDP. The core of this model is the optimization of the industrial structure, low-carbon technology and institutional innovation. A low-carbon economy is developed by means of energy conservation, emissions reduction and the development of clean energy.

**Greenhouse gas (GHG)**

Greenhouse gases are gases in an atmosphere that absorb solar radiation from the surface and then emit radiation, such as water vapor, CO2, and most refrigerants. Their effect is making the Earth’s surface warmer as the “greenhouse effect” accelerates solar radiation and increases the temperature of the air. Greenhouse gases in the Earth’s atmosphere mainly include CO2, CH4, N2O, SF6, HFC, PFC, and FSG.

**Carbon sequestration**

Also refers to carbon sinks. It is the process, activity and mechanism to remove carbon dioxide from the air. Generally, it indicates the capability of forests to absorb and store carbon dioxide. Carbon dioxide in the atmosphere is artificially sequestered in biological forms (plants) and the soil through forestation, forest management, and other forest carbon sequestration projects to mitigate the effects of climate change. Carbon sinks accumulate carbon in plants and the soil through forestation, forest management, and other forest carbon sequestration projects to mitigate the effects of climate change.

**HSE management system**

HSE is the acronym of the health, safety and environment management system. The HSE management system is an integration of various elements such as organizational structures, mandates, practices, processes and resources used for health, safety and environment management. The advanced, scientific and systematic integration and operation of these elements create the mutually reinforcing, supportive and interactive and dynamic management system.

**OIL (oil and natural gas)**

Compounds of hydrocarbons in wastewater. These include all substances collected by certain soot, as well as all substances extracted by solvents from assisted samples, which remained fixed during the extracting process.

**Chemical oxygen demand (COD)**

Major accidents refer to accidents that cause deaths above 10 but below 30, or grievous harm to people numbering above 50 but below 100, or economic losses worth above RMB 50 million but below RMB 100 million.

**Emergency accidents**

Emergency accidents refer to sudden emergent accidents which result in or may result in various casualties, and/or damage to property, the environment, society and public safety. Emergency accidents faced by CNOC include four types, namely natural disasters, accidents, public health and social security.

**Operational disease**

Diseases caused by exposure to dust, radioactive substances and other toxic and hazardous substances to employees working for enterprises, institutions and private organizations.

**Occupational health surveillance**

A series of health examinations for professionals in an industry aimed at preventing occupational health threats and improving the health of employees. Occupational health surveillance includes occupational health checks, management of occupational health archives, etc.
Index of Global Reporting Initiative (GRI) and International Petroleum Industry Environmental Conservation Association / American Petroleum Institute (IPIECA / API)

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Approach to Reporting

The contents in this report were selected and disclosed based on their substantiality, integrity and balance principle, and taking into account the concerns of stakeholders and the Company's great influence on the society. They exert substantial impact on the Company's sustainable development.

1. The Company pays close attention to the views of its stakeholders, and collects their comments through community visits, periodical reports, field study and online communication. It makes suggestions on the topics of the report by taking into account stakeholders' major concerns.

2. We assess the Company's sustainable development strategy and cover major social, economic and environmental events related to our strategies, risks and opportunities.

3. We refer to UN SDGs and the social responsibility initiatives and standards proposed by NGOs for topic selection. These include ISO26000 (Guidance on Social Responsibility).

4. Topics are selected based on the comprehensive assessment of stakeholders' concerns and their impact on the Company's strategies. The time span and the scope of impact for each specific topic are clearly defined to ensure the accuracy of the information disclosed.

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